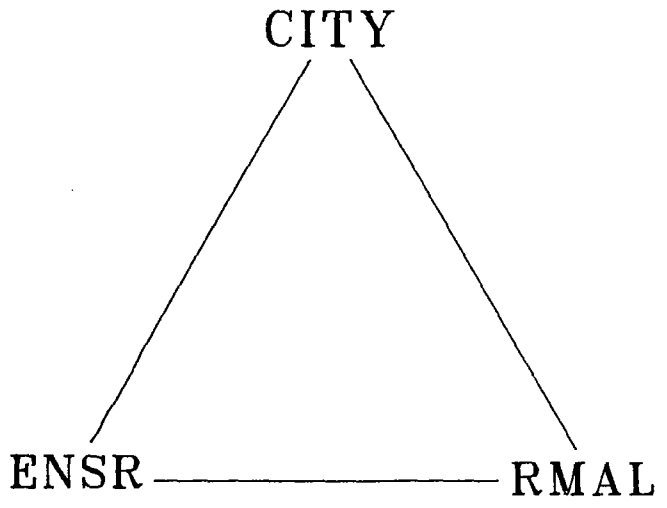
ANNUAL PERFORMANCE REPORT OF THE GRANULAR ACTIVATED CARBON TREATMENT SYSTEM FOR 1993

REILLY TAR & CHEMICAL CORP.
N.P.L. SITE
ST. LOUIS PARK, MINNESOTA

SUBMITTED MARCH 15, 1994



ANNUAL PERFORMANCE REPORT

OF THE

GRANULAR ACTIVATED CARBON TREATMENT SYSTEM

FOR 1993

SUBMITTED TO THE

REGIONAL ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

EXECUTIVE DIRECTOR
MINNESOTA POLLUTION CONTROL AGENCY

COMMISSIONER
MINNESOTA DEPARTMENT OF HEALTH

BY

THE CITY OF ST. LOUIS PARK, MINNESOTA

PURSUANT TO
CONSENT DECREE - REMEDIAL ACTION PLAN
SECTION 4.3.5.

UNITED STATES OF AMERICA, ET AL.

VS.

REILLY TAR & CHEMICAL CORPORATION, ET AL.

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA
CIVIL NO. 4-80-469

MARCH 15, 1994

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INTRODUCTION

The Consent Decree in the United States of America, et al. vs. Reilly Tar & Chemical Corporation (now known as Reilly Industries, Inc. -- Reilly), et al. (United States District Court, Minnesota, Civil No. 4-80-469) was signed by Judge Magnuson on September 3, 1986 and entered by the Court on the following day. The Effective Date of the Consent Decree is, therefore, September 4, 1986 (see Part EE of the Consent Decree).

Exhibit A (the Remedial Action Plan -- RAP) to, and an integral and enforceable part of, the Consent Decree (per Part F thereof) requires the responsible party to report the results of all monitoring of the Granular Activated Carbon (GAC) treatment system during the previous calendar year in accordance with the provisions of Section 4.3.5. therein. By Agreement between the City of St. Louis Park, Minnesota (City) and Reilly (Reilly/City Agreement) (Exhibit B to, and an integral and enforceable part of the Consent Decree, per Part Q thereof, as to the rights and responsibilities between the City and Reilly) the City is responsible for monitoring the treatment system and submitting the results of said monitoring.

HISTORY OF GRANULAR ACTIVATED CARBON TREATMENT SYSTEM OPERATIONS - 1993

Operation

The City operated the GAC treatment system in substantial compliance with Section 4.2. of the RAP during 1993, treating 424.4 million gallons of water. In correspondence dated December 18, 1992, the City notified the United States Environmental Protection Agency (USEPA), Minnesota Pollution Control Agency (MPCA), and Reilly that the results of fourth quarter 1992 monitoring indicated that the total of Other polynuclear aromatic hydrocarbons (PAH) appeared to exceed the Advisory Level of Other PAH established in Section 2.2 of the RAP, and indicated the GAC treatment system had been removed from service pending GAC replacement. The GAC treatment system was not operated because the system effluent could not be safely redirected from municipal use to surface water. The surface water discharge option was not feasible because the receiving surface water was serving as a Winter-time ice skating rink and treatment system discharge water could melt the ice and cause a mishap. As a result of the treatment system shut down, no discharge occurred in January and February.

The GAC was replaced the week of March 8, 1993 and the treatment system was returned to service on March 14. The lowest monthly pumping total occurred in March as a result of treatment system downtime prior to March 14. The pumping total was 31.0 million gallons (mg). The highest monthly pumping total was experienced in December (49.7 mg).

The GAC treatment system remained in a full time, operational mode until GAC was replaced on November 23 and 24, 1993. The GAC replacement occurred to avoid potential Winter-time conflict between discharge to surface water and its use as an ice skating rink. The treatment system remained in full operation through the end of 1993.

While greater detail relative to monitoring is provided later in this Report, following is a summary of the monthly pumpage volumes which confirms that the City made every effort to meet the intent of RAP Section 4.2.1. (i.e. a minimum of 200 million gallons must be pumped from SLP 10/15 annually and 10 million gallons must be pumped monthly).

Month	Treated Water Volume (Million Gallons)
January	00.0
February	00.0
March	31.0
April	46.3
May	34.9
June	40.7
July	44.9
August	45.5
September	36.8
October	47.9
November	36.9
Subtotal (Prior to GAC Replacement)	364.9
November	9.8
December	49.7
Subtotal (After GAC Replacement)	59.5
Total (Annual Pumpage)	424.4

A review of records indicates 409.7 million gallons of water were treated by the system's seventh carbon load between May, 1992 and December, 1992. The eighth carbon load treated 364.9 million gallons of water between March and November, 1993.

Monitoring

The 1993 monitoring program was jointly conducted by the City and Rocky Mountain Analytical Laboratory (RMAL). The City retrieved all samples and RMAL was responsible for analytical services. Laboratory analyses were conducted at the RMAL laboratory in Arvada, Colorado.

The 1993 monitoring schedule, as established in the 1993 Sampling Plan developed in accordance with the requirements of Section 3.3 of the RAP, provided for quarterly monitoring of the treatment system effluent and annual monitoring of the treatment system feed water.

Although the GAC treatment system was replaced in March, 1993, April analyses indicated the GAC may have experienced premature service life exhaustion. Due to a communication error the City's Project leader failed to advise the Parties of the results of the March, 1993 monitoring. Evaluation of third and fourth quarter monitoring (July 27 and October 4, 1993) results indicate the second quarter results were inconsistent and that the system was operating acceptably.

A summary of the 1993 GAC treatment system monitoring is as follows:

RESULTS OF MONITORING OF EIGHTH LOAD OF GAC (SERVICE 3/12/93-11/23/93)

NOTE: ALL REPORTED CONCENTRATIONS ARE IN PARTS PER TRILLION

	GAC FEED WATER SAMPLES		GAC TREATED WATER SAMPLES		FIELD BLANK/METHOD BLANK	
	OTHER	CARCINOGENIC	OTHER	CARCINOGENIC	OTHER	CARCINOGENIC
DATE	PAH TOTAL	PAH TOTAL	PAH TOTAL	PAH TOTAL	PAH TOTAL	PAH TOTAL
03/23/93	NS	NS	22/27	6/1	10/19/7	ND/1/ND
04/27/93	NS	NS	180/211	ND/ND	7/8	ND/ND
07/27/93	NS	NS	69	ND	12/6	ND/ND
08/09/93	2091/2211	ND/ND	NS	NS	6/7	ND/ND
10/04/93	NS	NS	76	ND	7/14	ND/1

ND - Not Detected
XX/XX - Indicates results of multiple monitoring (except Field Blank/Method Blank)
- For Field Blank/Method Blank monitoring
- Indicates Field Blank/Method Blank results
XX/XX/XX - For Field Blank/Method Blank monitoring
- Indicates Field Blank/Method Blank/Method Blank results
NS - Not Sampled

October 5, 1993 monitoring included laboratory analysis of the treated water for an extended list of PAH and acid fractions pursuant to the provisions of Section 4.3.4. of the RAP. No compounds contained in the extended list of PAH or acid fractions were detected.

Results of 1993 monitoring are provided in the accompanying Appendix.

R94/apr93

APPENDIX

Enseco
A Corning Company

CASE NARRATIVE

FOR

City of St. Louis Park

November 18, 1993

Enseco - RMAL Project Number 031565

Introduction

Six aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on October 06, 1993. The samples were logged in under RMAL project number 031565. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. Sample GAC-SLP10FBDAF-100593 was extracted and held per the April 1990 QAPP. The samples were analyzed for acid fraction part-per-billion (ppb) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPB PAH

031565-0001MS and -0001SD matrix spike recoveries were outside of advisory limits for 4-Nitrophenol. Quantitation was checked, all other spike recoveries and RPD's were within advisory limits, and no further action was taken.

Enseco Incorporated
4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Julieann L. Kramer **Date:** Nov 18 93
Julieann L. Kramer
Program Manager

Approved by: Karen Germann **Date:** Nov 18, 1993
Karen Germann
Project Administrator

Enseco
A Corning Company

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
031565-0001-SA	GAC-SLP10TAF-100593	AQUEOUS	05 OCT 93		06 OCT 93
031565-0001-DU	GAC-SLP10TDAF-100593	AQUEOUS	05 OCT 93		06 OCT 93
031565-0001-MS	GAC-SLP10TMSAF-100593	AQUEOUS	05 OCT 93		06 OCT 93
031565-0001-SD	GAC-SLP10TMSDAF-100593	AQUEOUS	05 OCT 93		06 OCT 93
031565-0001-FB	GAC-SLP10TFBAF-100593	AQUEOUS	05 OCT 93		06 OCT 93
031565-0001-FD	GAC-SLP10TFBDAF-100593	AQUEOUS	05 OCT 93		06 OCT 93

Enseco
A Corning Company

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 031565	Group Code	Analysis Description	Custom Test?
0001 , 0001	A	CLP/HSL Semivolatile Organics	N
		CLP Prep - HSL Semivolatile Organics by GC/MS	N
0001	B	CLP Prep - HSL Semivolatile Organics by GC/MS	N

Rocky Mountain
Analytical Laboratory

Enseco
A Corning Company

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

Enseco Incorporated
4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

☐ Enseco Houston
1420 East North rive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT	SAMPLE SAFE™ CONDITIONS PACKED BY: MJB	SEAL NUMBER
PROJECT	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	CONDITION OF CONTENTS
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MJB	INITIAL CONTENTS TEMP. °C
SAMPLING SITE: SAME	SEAL NUMBER	SAMPLING STATUS ☐ Done ☐ Continuing Until
TEAM LEADER: MJB	SEAL INTACT UPON RECEIPT BY LAB. ☑ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB. 3.3 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-5-93		GAC-SLP10TAF-100593-01	1XL AMBER	2	PPB PAH	ACID FRACTION
10-5-93		GAC-SLP10TDAF-100593-01DU	1XL AMBER	2	PPB PAH	ACID FRACTION
10-5-93		GAC-SLP10TMSAF-100593-01MS	1XL AMBER	2	PPB PAH	ACID FRACTION
10-5-93		GAC-SLP10TMSDAF-100593-01SD	1XL AMBER	2	PPB PAH	ACID FRACTION
10-5-93		GAC-SLP10TFBAF-100593-01FB	1XL AMBER	2	PPB PAH	ACID FRACTION
10-5-93		GAC-SLP10TFBDAF-100593-01FD	1XL AMBER	2	PPB PAH	ACID FRACTION

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJB

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420552

RECEIVED FOR LAB: DMR

SIGNED: [signature]

DATE/TIME: 10/6/93 830

ENSECO PROJECT NUMBER: ~~31555~~ 031565

ENS-4011

White – CLIENT Pink – LAB

SUMMARY

DATA

PACKAGE

FOR

City of Saint Louis Park

RMAL No: 31565

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0301575.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-dichlorobenzene	10	U
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-nitroso-Di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2 4-Dimethylphenol	10	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2 4-Dichlorophenol	10	U
120-82-1	1 2 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2 4 5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethyl Phthalate	10	U
606-20-2	2 6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0301575.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2 4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	10	U
121-14-2	2 4-Dinitrotoluene	10	U
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4 6-Dinitro-2-methylphenol	10	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3 3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octyl Phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

31565-01

Lab Name: Rocky Mountain Analytical Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0301575.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
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28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01DU

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01DU

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0601578.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-dichlorobenzene	10	U
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-nitroso-Di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2 4-Dimethylphenol	10	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2 4-Dichlorophenol	10	U
120-82-1	1 2 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2 4 5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethyl Phthalate	10	U
606-20-2	2 6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01DU

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01DU

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0601578.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2 4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	10	U
121-14-2	2 4-Dinitrotoluene	10	U
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4 6-Dinitro-2-methylphenol	10	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3 3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octyl Phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

31565-01DU

Lab Name: Rocky Mountain Analytical Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01DU

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0601578.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	68-12-2	Formamide, N,N-dimethyl-	6.115	4	NJB
2.					
3.					
4.					
5.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01FB

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01FB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0801580.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-dichlorobenzene	10	U
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-nitroso-Di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2 4-Dimethylphenol	10	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2 4-Dichlorophenol	10	U
120-82-1	1 2 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2 4 5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethyl Phthalate	10	U
606-20-2	2 6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01FB

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01FB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0801580.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2 4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	10	U
121-14-2	2 4-Dinitrotoluene	10	U
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4 6-Dinitro-2-methylphenol	10	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3 3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octyl Phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

31565-01FB

Lab Name: Rocky Mountain Analytical Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01FB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0801580.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	68-12-2	Formamide, N,N-dimethyl-	6.110	6	NJB
2.					
3.					
4.					
5.					
6.					
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9.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01FD

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01FD

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0701579.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-dichlorobenzene	10	U
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-nitroso-Di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2 4-Dimethylphenol	10	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2 4-Dichlorophenol	10	U
120-82-1	1 2 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2 4 5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethyl Phthalate	10	U
606-20-2	2 6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01FD

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01FD

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0701579.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2 4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	10	U
121-14-2	2 4-Dinitrotoluene	10	U
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4 6-Dinitro-2-methylphenol	10	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3 3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octyl Phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

31565-01FD

Lab Name: Rocky Mountain Analytical Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: 31565-01FD

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0701579.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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6.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01MS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31510 SAS No.: SDG No.: 31510

Matrix: (soil/water) WATER Lab Sample ID: 31565-01MS

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0401576.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	53	
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	52	
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-dichlorobenzene	24	
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-nitroso-Di-n-propylamine	38	
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2 4-Dimethylphenol	10	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2 4-Dichlorophenol	10	U
120-82-1	1 2 4-Trichlorobenzene	25	
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	62	
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2 4 5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethyl Phthalate	10	U
606-20-2	2 6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	35	

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01MS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31510 SAS No.: SDG No.: 31510

Matrix: (soil/water) WATER Lab Sample ID: 31565-01MS

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0401576.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2 4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	64	
121-14-2	2 4-Dinitrotoluene	42	
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4 6-Dinitro-2-methylphenol	10	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	59	
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	43	
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3 3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	1	J
117-84-0	Di-n-octyl Phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01MSD

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31510 SAS No.: SDG No.: 31510

Matrix: (soil/water) WATER Lab Sample ID: 31565-01MSD

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0501577.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	60	
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	59	
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-dichlorobenzene	29	
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-nitroso-Di-n-propylamine	42	
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2 4-Dimethylphenol	10	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2 4-Dichlorophenol	10	U
120-82-1	1 2 4-Trichlorobenzene	26	
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	67	
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2 4 5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethyl Phthalate	10	U
606-20-2	2 6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	1	J
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	36	

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

31565-01MSD

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31510 SAS No.: SDG No.: 31510

Matrix: (soil/water) WATER Lab Sample ID: 31565-01MSD

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0501577.D

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2 4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	70	
121-14-2	2 4-Dinitrotoluene	45	
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4 6-Dinitro-2-methylphenol	10	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	64	
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	46	
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3 3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octyl Phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U

(1) - Cannot be separated from Diphenylamine

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Rocky Mountain Analytical Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 #	S7 (2CP) #	S8 (DCB) #	TOT OUT
01	SBLK01	74	71	68	89	74	75	72	80	0
02	31565-01	66	58	73	91	82	82	78	76	0
03	31565-01MS	68	58	73	80	69	89	64	63	0
04	31565-01MSD	75	67	77	89	80	88	80	75	0
05	31565-01DU	77	78	76	96	79	83	75	84	0
06	31565-01FD	69	59	70	90	78	81	75	67	0
07	31565-01FB	78	74	78	95	82	74	77	80	0
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		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(35-114)	
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S3 (TPH)	= Terphenyl-d14	(33-141)	
S4 (PHL)	= Phenol-d5	(10-110)	
S5 (2FP)	= 2-Fluorophenol	(21-110)	
S6	= 2 4 6-Tribromophenol	(10-123)	
S7 (2CP)	= 2-Chlorophenol-d4	(33-110)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Rocky Mountain Analytical Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix Spike - EPA Sample No.: 31565-01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Phenol	75	0	53	71	12-110
2-Chlorophenol	75	0	52	69	27-123
1 4-dichlorobenzene	50	0	24	47	36- 97
N-nitroso-Di-n-prop.(1)	50	0	38	76	41-116
1 2 4-Trichlorobenzene	50	0	25	49	39- 98
4-Chloro-3-Methylphenol	75	0	62	83	23- 97
Acenaphthene	50	0	35	71	46-118
4-Nitrophenol	75	0	64	86*	10- 80
2 4-Dinitrotoluene	50	0	42	84	24- 96
Pentachlorophenol	75	0	59	78	9-103
Pyrene	50	0	43	86	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75	60	80	12	42	12-110
2-Chlorophenol	75	59	79	14	40	27-123
1 4-dichlorobenzene	50	29	58	21	28	36- 97
N-nitroso-Di-n-prop.(1)	50	42	84	10	38	41-116
1 2 4-Trichlorobenzene	50	26	53	8	28	39- 98
4-Chloro-3-Methylphenol	75	67	89	7	42	23- 97
Acenaphthene	50	36	72	1	31	46-118
4-Nitrophenol	75	70	93*	8	50	10- 80
2 4-Dinitrotoluene	50	45	90	7	38	24- 96
Pentachlorophenol	75	64	86	10	50	9-103
Pyrene	50	46	92	7	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 2 out of 22 outside limits

COMMENTS: _____

_____

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Lab File ID: S0101573.D Lab Sample ID: SBLK01

Instrument ID: S Date Extracted: 10/07/93

Matrix: (soil/water) WATER Date Analyzed: 10/21/93

Level: (low/med) LOW Time Analyzed: 1019

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	31565-01	31565-01	S0301575.D	10/21/93
02	31565-01MS	31565-01MS	S0401576.D	10/21/93
03	31565-01MSD	31565-01MSD	S0501577.D	10/21/93
04	31565-01DU	31565-01DU	S0601578.D	10/21/93
05	31565-01FD	31565-01FD	S0701579.D	10/21/93
06	31565-01FB	31565-01FB	S0801580.D	10/21/93
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COMMENTS:

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLK01

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0101573.D

Level: (low/med) LOW Date Received: 10/06/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-dichlorobenzene	10	U
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-nitroso-Di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2 4-Dimethylphenol	10	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2 4-Dichlorophenol	10	U
120-82-1	1 2 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2 4 5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethyl Phthalate	10	U
606-20-2	2 6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0101573.D

Level: (low/med) LOW Date Received: 10/06/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ML) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2 4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	10	U
121-14-2	2 4-Dinitrotoluene	10	U
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4 6-Dinitro-2-methylphenol	10	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3 3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	10	U
117-84-0	Di-n-octyl Phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SBLK01

Lab Name: Rocky Mountain Analytical Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S0101573.D

Level: (low/med) LOW Date Received: 10/06/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/07/93

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/21/93

Injection Volume: 0.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	68-12-2	Formamide, N,N-dimethyl-	6.089	9	NJ
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8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Rocky Mountain Analytical Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Lab File ID (Standard): S0572.D Date Analyzed: 10/21/93

Instrument ID: S Time Analyzed: 0834

		IS1 AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	183965	9.19	660839	10.82	284493	12.93
	UPPER LIMIT	367930	9.69	1321678	11.32	568986	13.43
	LOWER LIMIT	91982	8.69	330420	10.32	142246	12.43
	EPA SAMPLE No.						
01	SBLK01	184327	9.19	609047	10.80	290451	12.93
02	31565-01	178597	9.19	669511	10.82	297724	12.93
03	31565-01MS	185356	9.19	654406	10.82	282646	12.93
04	31565-01MSD	175156	9.20	617976	10.82	276727	12.93
05	31565-01DU	172784	9.19	605599	10.82	272807	12.93
06	31565-01FD	174763	9.20	604855	10.82	287783	12.93
07	31565-01FB	171813	9.20	589570	10.82	286751	12.93
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IS1 = 1 4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Rocky Mountain Analytical Contract:

Lab Code: ENSECO Case No.: 31565 SAS No.: SDG No.: 31565

Lab File ID (Standard): S0572.D Date Analyzed: 10/21/93

Instrument ID: S Time Analyzed: 0834

		IS4 (PHN) AREA	#	RT	#	IS5 (CRY) AREA	#	RT	#	IS6 (PRY) AREA	#	RT	#
	12 HOUR STD	421526		14.62		246707		17.54		273345		20.40	
	UPPER LIMIT	843052		15.12		493414		18.04		546690		20.90	
	LOWER LIMIT	210763		14.12		123354		17.04		136672		19.90	
	EPA SAMPLE No.												
01	SBLK01	422958		14.62		268953		17.54		259595		20.42	
02	31565-01	435203		14.62		283796		17.53		290397		20.40	
03	31565-01MS	422175		14.62		265223		17.53		282416		20.41	
04	31565-01MSD	410645		14.62		249576		17.54		259883		20.40	
05	31565-01DU	392855		14.62		264046		17.54		266702		20.42	
06	31565-01FD	445064		14.62		282184		17.54		293306		20.42	
07	31565-01FB	389439		14.62		256250		17.54		253841		20.41	
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IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Enseco
A Corning Company

CASE NARRATIVE

FOR

City of St. Louis Park

April 23, 1993

Enseco - RMAL Project Number 028257

Introduction

Seven aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on March 24, 1993. The samples were logged in under RMAL project number 028257. Sample GAC-SLP1SFBD-032393 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

Sample 028257-0004, showed a surrogate which exceeded the upper control limit. All instrument calibration, surrogate standard concentration, etc. were checked and found to be in control. It has been concluded that an interference specific to the surrogate is present which resulted in the high recoveries. This interference does not affect the quantitation of target components.

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Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

28257-0001MS/SD matrix spike percent recovery for Quinoline, and Benzo(E)Pyrene were reported outside of QC limits due to an interference present in the sample. Quantitation was checked and no further action was taken.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 028257 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** April 30, 1993
Julieann L. Kramer
Program Manager

Approved by: _____ **Date:** 5/5/93
Randy Greaves
Program Manager

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SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
028257-0001-SA	GAC-SLP15T-032393	AQUEOUS	23 MAR 93		24 MAR 93
028257-0001-DU	GAC-SLP15TD-032393	AQUEOUS	23 MAR 93		24 MAR 93
028257-0001-MS	GAC-SLP15MS-032393	AQUEOUS	23 MAR 93		24 MAR 93
028257-0001-SD	GAC-SLP15MSD-032393	AQUEOUS	23 MAR 93		24 MAR 93
028257-0001-FB	GAC-SLP15FB-032393	AQUEOUS	23 MAR 93		24 MAR 93
028257-0001-FD	GAC-SLP15FBD-032393	AQUEOUS	23 MAR 93		24 MAR 93
028257-0002-SA	GAC-SLP4T-032393	AQUEOUS	23 MAR 93		24 MAR 93

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 028257	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco
A Corning Company

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

☐ Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

☐ Enseco Houston
1420 East North Belt Drive
Suite 120
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713/987-9767 FAX: 713/987-9769

Enseco
A Corning Company

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis PARK (WATER DEPT)
PROJECT:
SAMPLING COMPANY: SAME
SAMPLING SITE: SAME
TEAM LEADER: MJR

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJR
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY:
INITIAL CONTENTS TEMP.: °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB.: 8.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-23-93		GAC-SLP 15 MS -032393 01 MS	1XL AMBER	6	PPL PAH	PPL 5
3-23-93		GAC-SLP 15 MSD-032393 01 SD	1XL AMBER	6	PPL PAH	PPL 5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJR
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103420616
RECEIVED FOR LAB: Enseco RMAL
SIGNED: Alexandra C. Hall
DATE/TIME: 0845 24MAR93
ENSECO PROJECT NUMBER:

ENS—4011

White – C' Pink – LAB

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
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CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MJR

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJR

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY:

INITIAL CONTENTS TEMP.: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB.: 9.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-23-93		GAC-SLPIST-032393 01	IXLAMBER	6	PPL PAH	PPL 5
3-23-93		GAC-SLPISTD-032393 010u	IXLAMDER	6	PPL PAH	PPL 5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJR

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420616

RECEIVED FOR LAB: Enseco-RMAL

SIGNED: Alexandra E. Hall

DATE/TIME: 0845 24MAR93

ENSECO PROJECT NUMBER: 028257

ENS-4011

White - C Pink - LAB

Enseco
A Corning Company

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CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)
PROJECT:
SAMPLING COMPANY: SAME
SAMPLING SITE: SAME
TEAM LEADER: MJH

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJH
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY:
INITIAL CONTENTS TEMP. °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 12.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-23-93		GAC-SLPIS FB-032393 01FB	IXL AMBER	6	PPT PAH	PPT 5
3-23-93		GAC-SLPIS FBD-032393 01FBD	IXL AMBER	6	PPT PAH	PPT 5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103420616
RECEIVED FOR LAB: Enseco-RMAL
SIGNED: Alexandra E. Hall
DATE/TIME: 24MAR93
ENSECO PROJECT NUMBER:

ENS—4011

White – C' Pink – LAB

Enseco
A Corning Company

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CHAIN OF CUSTODY

SAMPLE SAFE™ CONDITIONS

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)	PACKED BY: MJK	SEAL NUMBER:
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY:	INITIAL CONTENTS TEMP. °C
SAMPLING SITE: SAME	SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MJK	SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-23-93		EAC-SLP4T-032393 02	1/2L AMBER	6	PPL PAH	PPL 5
3-23-93		PCJ-SLP4PP-032393 01	8oz AMBER	1	Phenolics (2925)	

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJK
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 210342062O
RECEIVED FOR LAB: Enseco-RMAL
SIGNED: Alexandra C. Hall
DATE/TIME: 24 MAR 93 0845
ENSECO PROJECT NUMBER:

ENS—4011

White – C' Pink – LAB

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

RMAL PROJECT# 028257

PPT-PAH

SUMMARY

DATA

PACKAGE

FOR

CITY OF SAINT LOUIS PARK

RMAL NO: 28257

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28257-01

GAC-SLP15T-032393

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28257-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7521

Level: (low/med) LOW Date Received: 03/24/93

% Moisture: decanted: (Y/N) N Date Extracted: 03/26/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/16/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	B
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	JR
83-32-9	Acenaphthene	2	
132-64-9	Dibenzofuran	1	R
86-73-7	Fluorene	2	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	1	J
218-01-9	Chrysene	1	J
205-99-2	Benzo(B)Fluoranthene	1	J
207-08-9	Benzo(K)Fluoranthene	1	J
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	1	J
53-70-3	Dibenz(A,H)Anthracene	1	J
191-24-2	Benzo(G,H,I)Perylene	1	J

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28257-01DU

GAC-SLP15TD-032393

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28257-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7523

Level: (low/med) LOW Date Received: 03/24/93

% Moisture: decanted: (Y/N) N Date Extracted: 03/26/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/16/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	B
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	BJ
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	B
90-12-0	1-Methylnaphthalene	1	BJR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	J
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	2	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	6	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	3	B
129-00-0	Pyrene	3	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28257-01FB

GAC-SLP15FB-032393

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28257-01FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7501

Level: (low/med) LOW Date Received: 03/24/93

% Moisture: decanted: (Y/N) N Date Extracted: 03/27/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/15/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	4	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28257-02

GAC-SLP4T-032393

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28257-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7544

Level: (low/med) LOW Date Received: 03/24/93

% Moisture: decanted: (Y/N) N Date Extracted: 03/26/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/17/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	3	B
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	8	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	2	BR
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	4	B
90-12-0	1-Methylnaphthalene	1	BJ
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	6	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	1	J
205-99-2	Benzo(B)Fluoranthene	1	J
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	1	J
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	2	J

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28257-01MS

GAC-SLP15MS-032393

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28257-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7542

Level: (low/med) LOW Date Received: 03/24/93

% Moisture: decanted: (Y/N) N Date Extracted: 03/26/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/17/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	B
95-13-6	1H-Indene	10	
91-20-3	Naphthalene	12	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	16	B
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	11	B
90-12-0	1-Methylnaphthalene	1	BJR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	2	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	10	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	3	B
56-55-3	Benzo(A)Anthracene	1	J
218-01-9	Chrysene	6	
205-99-2	Benzo(B)Fluoranthene	1	JR
207-08-9	Benzo(K)Fluoranthene	1	JR
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	1	JR
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	1	J

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28257-01MSD

GAC-SLP15MSD-032393

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28257-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7543

Level: (low/med) LOW Date Received: 03/24/93

% Moisture: decanted: (Y/N) N Date Extracted: 03/26/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/17/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	B
95-13-6	1H-Indene	10	
91-20-3	Naphthalene	12	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	17	B
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	11	B
90-12-0	1-Methylnaphthalene	1	BJR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	2	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	11	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	6	
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	6	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	1	JR

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL032693

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C7520

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 03/26/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/16/93

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	5	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	J
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	4	
90-12-0	1-Methylnaphthalene	1	J
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK02

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL032793

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C7519

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 03/27/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/16/93

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP) #	S2 (FLU) #	S3 (CHR) #	TOT OUT
01	28257-01	96	67	62	0
02	28257-01DU	100	80	58	0
03	28257-01FB	84	76	91	0
04	28257-02	90	85	83	0
05	28257-01MS	96	84	136 *	1
06	28257-01MSD	97	85	131 *	1
07	BLK02	67	58	62	0
08	BLK01	83	70	96	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 28257-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	0	10.21	107	20-150
Naphthalene	9.520	3.023	12.02	95	20-150
Quinoline	9.520	0	15.59	164 *	20-150
2-Methylnaphthalene	9.520	2.071	10.76	91	20-150
Fluorene	9.520	1.630	10.09	89	20-150
Chrysene	9.520	1.214	5.748	48	20-150
Benzo(E)Pyrene	9.520	0	1.273	13	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	10.44	110	3	28	20-150
Naphthalene	9.520	12.02	95	0	28	20-150
uinoline	9.520	16.54	174 *	6	28	20-150
-Methylnaphthalene	9.520	11.40	98	7	28	20-150
luorene	9.520	10.54	94	5	28	20-150
Chrysene	9.520	5.950	50	4	28	20-150
Benzo(E)Pyrene	9.520	1.464	15	14	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK02

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Lab File ID: C7519 Lab Sample ID: BL032793

Instrument ID: 4500-C Date Extracted: 03/27/93

Matrix: (soil/water) WATER Date Analyzed: 04/16/93

Level:(low/med) LOW Time Analyzed: 1136

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	28257-01FB	28257-01FB	C7501	04/15/93

COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Lab File ID: C7520 Lab Sample ID: BL032693

Instrument ID: 4500-C Date Extracted: 03/26/93

Matrix: (soil/water) WATER Date Analyzed: 04/16/93

Level:(low/med) LOW Time Analyzed: 1223

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	28257-01	28257-01	C7521	04/16/93
02	28257-01DU	28257-01DU	C7523	04/16/93
03	28257-02	28257-02	C7544	04/17/93
04	28257-01MS	28257-01MS	C7542	04/17/93
05	28257-01MSD	28257-01MSD	C7543	04/17/93

COMMENTS:

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Lab File ID: C7500T Run Date: 04/15/92

Instrument ID: 4500-C Run Time: 1051

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40_PPB_PAH	C7500	04/15/93	1051
02	28257-01FB	28257-01FB	C7501	04/15/93	1204

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Lab File ID: C7516T Run Date: 04/16/92

Instrument ID: 4500-C Run Time: 0910

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40_PPB_PAH	C7516	04/16/93	0910
02	BLK02	BL032793	C7519	04/16/93	1136
03	BLK01	BL032693	C7520	04/16/93	1223
04	28257-01	28257-01	C7521	04/16/93	1310
05	28257-01DU	28257-01DU	C7523	04/16/93	1443

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Lab File ID: C7533T Run Date: 04/17/92

Instrument ID: 4500-C Run Time: 1104

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40_PPB_PAH	C7533	04/17/93	1104
02	28257-01MS	28257-01MS	C7542	04/17/93	1859
03	28257-01MSD	28257-01MSD	C7543	04/17/93	1945
04	28257-02	28257-02	C7544	04/17/93	2032

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Lab File ID: C7495T Run Date: 04/14/93

Instrument ID: 4500-C Run Time: 1526

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40_PPB_PAH	C7495	04/14/93	1526
02	SSTD020	20_PPB_PAH	C7496	04/14/93	1612
03	SSTD240	240_PPB_PAH	C7497	04/14/93	1659
04	SSTD600	600_PPB_PAH	C7498	04/14/93	1745
05	SSTD1200	1200_PPB_PAH	C7499	04/14/93	1920

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: STAND SAS No.: SDG No.:

Instrument ID: 4500-C Calibration Date(s): 04/14/93 04/14/93

Calibration Times: 1526 1920

LAB FILE ID: RRF20 = C7496 RRF40 = C7495
RRF240= C7497 RRF600= C7498 RF1200= C7499

COMPOUND	RRF20	RRF40	RRF240	RRF600	RF1200	$\overline{RRF}$	% RSD
2,3-Dibenzofuran	1.325	1.198	1.645	1.671	1.510	1.470	13.9
2,3-Dihydroindene	1.134	1.030	1.383	1.406	1.262	1.243	13.0
1H-Indene	1.414	1.326	1.721	1.751	1.364	1.515	13.5
Naphthalene	2.298	2.140	2.705	2.560	1.725	2.286	16.8
Benzo(B)Thiophene	1.750	1.649	2.126	2.084	1.542	1.830	14.3
Quinoline	1.095	1.195	1.335	1.316	1.417	1.272	10.0
1H-Indole	1.223	1.327	1.494	1.495	1.402	1.388	8.4
2-Methylnaphthalene	1.180	1.113	1.377	1.370	1.233	1.255	9.3
1-Methylnaphthalene	1.538	1.485	1.862	1.822	1.446	1.631	12.0
Biphenyl	1.817	1.759	2.157	2.082	1.438	1.851	15.4
Acenaphthylene	1.892	1.923	2.236	2.160	1.485	1.939	15.2
Acenaphthene	1.132	1.146	1.346	1.342	1.105	1.214	9.8
Dibenzofuran	1.855	1.857	2.145	2.051	1.746	1.931	8.4
uorene	1.080	1.126	1.291	1.276	1.371	1.229	9.9
benzothiophene	0.987	0.952	1.183	1.143	0.957	1.044	10.5
nenanthrene	1.079	0.976	1.147	1.124	1.004	1.066	7.0
Anthracene	0.921	0.920	1.081	1.052	0.951	0.985	7.7
Acridine	0.646	0.724	0.742	0.716	0.826	0.731	8.8
Carbazole	0.877	1.177	1.055	1.006	0.963	1.016	11.0
Fluoranthene	0.883	0.948	1.001	0.950	0.905	0.937	4.9
Pyrene	1.020	1.056	1.025	0.970	0.914	0.997	5.6
Benzo(A)Anthracene	1.432	1.492	1.692	1.724	1.398	1.548	9.7
Chrysene	1.479	1.504	1.716	1.720	1.375	1.559	9.8
Benzo(B)Fluoranthene	1.505	1.279	1.726	1.805	1.447	1.552	13.8
Benzo(K)Fluoranthene	1.574	1.132	1.586	1.643	1.394	1.466	14.2
Benzo(E)Pyrene	1.614	1.295	1.856	1.918	1.561	1.649	15.2
Benzo(A)Pyrene	0.881	1.055	0.853	0.942	1.133	0.973	12.2
Perylene	1.246	0.935	1.421	1.498	1.273	1.275	17.0
Indeno(1,2,3-CD)Pyrene	1.507	1.282	1.631	1.727	1.499	1.529	10.9
Dibenz(A,H)Anthracene	1.409	1.152	1.364	1.437	1.253	1.323	9.0
Benzo(G,H,I)Perylene	1.310	0.989	1.469	1.532	1.320	1.324	15.9
Naphthalene-d8	2.019	1.853	2.426	2.331	1.659	2.058	15.6
Fluorene-d10	1.126	1.163	1.380	1.383	1.300	1.270	9.5
Chrysene-d12	1.094	1.105	1.324	1.339	1.199	1.212	9.6

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Instrument ID: 4500-C Calibration date: 04/15/93 Time: 1051

Lab File ID: C7500 Init. Calib. Date(s): 04/14/93 04/14/93

Init. Calib. Times: 1526 1920

COMPOUND	$\overline{RRF}$	RRF40	MIN RRF	%D	MAX %D
2,3-Dibenzofuran	1.470	1.300		11.6	35.0
2,3-Dihydroindene	1.243	1.179		5.1	35.0
1H-Indene	1.515	1.462		3.5	35.0
Naphthalene	2.286	2.340		-2.4	35.0
Benzo(B)Thiophene	1.830	1.837		-0.4	35.0
Quinoline	1.272	1.156		9.1	35.0
1H-Indole	1.388	1.139		17.9	35.0
2-Methylnaphthalene	1.255	1.203		4.1	35.0
1-Methylnaphthalene	1.631	1.684		-3.2	35.0
Biphenyl	1.851	1.985		-7.2	35.0
Acenaphthylene	1.939	1.956		-0.9	35.0
Acenaphthene	1.214	1.252		-3.1	35.0
Dibenzofuran	1.931	2.038		-5.5	35.0
Fluorene	1.229	1.368		-11.3	35.0
Dibenzothiophene	1.044	0.996		4.6	35.0
Phenanthrene	1.066	1.019		4.4	35.0
Anthracene	0.985	0.897		8.9	35.0
Acridine	0.731	0.615		15.9	35.0
Carbazole	1.016	0.679		33.2	35.0
Fluoranthene	0.937	0.853		9.0	35.0
Pyrene	0.997	0.907		9.0	35.0
Benzo(A)Anthracene	1.548	1.157		25.3	35.0
Chrysene	1.559	1.257		19.4	35.0
Benzo(B)Fluoranthene	1.552	1.365		12.0	35.0
Benzo(K)Fluoranthene	1.466	1.361		7.2	35.0
Benzo(E)Pyrene	1.649	1.598		3.1	35.0
Benzo(A)Pyrene	0.973	1.189		-22.2	35.0
Perylene	1.275	1.095		14.1	35.0
Indeno(1,2,3-CD)Pyrene	1.529	1.349		11.8	35.0
Dibenz(A,H)Anthracene	1.323	1.132		14.4	35.0
Benzo(G,H,I)Perylene	1.324	1.237		6.6	35.0
Naphthalene-d8	2.058	2.034		1.2	35.0
Fluorene-d10	1.270	1.308		-3.0	35.0
Chrysene-d12	1.212	1.057		12.8	35.0

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Instrument ID: 4500-C Calibration date: 04/16/93 Time: 0910

Lab File ID: C7516 Init. Calib. Date(s): 04/14/93 04/14/93

Init. Calib. Times: 1526 1920

COMPOUND	$\overline{RRF}$	RRF40	MIN RRF	%D	MAX %D
2,3-Dibenzofuran	1.470	1.070		27.2	35.0
2,3-Dihydroindene	1.243	0.935		24.8	35.0
1H-Indene	1.515	1.055		30.4	35.0
Naphthalene	2.286	1.974		13.6	35.0
Benzo(B)Thiophene	1.830	1.518		17.0	35.0
Quinoline	1.272	1.128		11.3	35.0
1H-Indole	1.388	1.205		13.2	35.0
2-Methylnaphthalene	1.255	1.026		18.2	35.0
1-Methylnaphthalene	1.631	1.422		12.8	35.0
Biphenyl	1.851	1.516		18.1	35.0
Acenaphthylene	1.939	1.740		10.3	35.0
Acenaphthene	1.214	1.006		17.1	35.0
Dibenzofuran	1.931	1.890		2.1	35.0
Fluorene	1.229	1.129		8.1	35.0
Dibenzothiophene	1.044	1.049		-0.5	35.0
Phenanthrene	1.066	1.054		1.1	35.0
Anthracene	0.985	0.946		4.0	35.0
Acridine	0.731	0.733		-0.3	35.0
Carbazole	1.016	0.811		20.2	35.0
Fluoranthene	0.937	1.018		-8.6	35.0
Pyrene	0.997	1.176		-18.0	35.0
Benzo(A)Anthracene	1.548	1.373		11.3	35.0
Chrysene	1.559	1.418		9.0	35.0
Benzo(B)Fluoranthene	1.552	1.426		8.1	35.0
Benzo(K)Fluoranthene	1.466	1.318		10.1	35.0
Benzo(E)Pyrene	1.649	1.607		2.5	35.0
Benzo(A)Pyrene	0.973	1.209		-24.2	35.0
Perylene	1.275	1.141		10.5	35.0
Indeno(1,2,3-CD)Pyrene	1.529	1.392		9.0	35.0
Dibenz(A,H)Anthracene	1.323	1.135		14.2	35.0
Benzo(G,H,I)Perylene	1.324	1.230		7.1	35.0
Naphthalene-d8	2.058	1.690		17.9	35.0
Fluorene-d10	1.270	1.202		5.4	35.0
Chrysene-d12	1.212	1.155		4.7	35.0

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Instrument ID: 4500-C Calibration date: 04/17/93 Time: 1104

Lab File ID: C7533 Init. Calib. Date(s): 04/14/93 04/14/93

Init. Calib. Times: 1526 1920

COMPOUND	$\overline{RRF}$	RRF40	MIN RRF	%D	MAX %D
2,3-Dibenzofuran	1.470	1.225		16.7	35.0
2,3-Dihydroindene	1.243	1.037		16.6	35.0
1H-Indene	1.515	1.270		16.2	35.0
Naphthalene	2.286	2.018		11.7	35.0
Benzo(B)Thiophene	1.830	1.444		21.1	35.0
Quinoline	1.272	1.022		19.6	35.0
1H-Indole	1.388	1.032		25.6	35.0
2-Methylnaphthalene	1.255	1.006		19.8	35.0
1-Methylnaphthalene	1.631	1.387		15.0	35.0
Biphenyl	1.851	1.656		10.5	35.0
Acenaphthylene	1.939	1.708		11.9	35.0
Acenaphthene	1.214	1.041		14.2	35.0
Dibenzofuran	1.931	1.790		7.3	35.0
Fluorene	1.229	1.179		4.1	35.0
Dibenzothiophene	1.044	0.828		20.7	35.0
Phenanthrene	1.066	0.841		21.1	35.0
Anthracene	0.985	0.728		26.1	35.0
Acridine	0.731	0.607		17.0	35.0
Carbazole	1.016	0.720		29.1	35.0
Fluoranthene	0.937	0.850		9.3	35.0
Pyrene	0.997	0.949		4.8	35.0
Benzo(A)Anthracene	1.548	1.234		20.3	35.0
Chrysene	1.559	1.298		16.7	35.0
Benzo(B)Fluoranthene	1.552	1.444		7.0	35.0
Benzo(K)Fluoranthene	1.466	1.272		13.2	35.0
Benzo(E)Pyrene	1.649	1.510		8.4	35.0
Benzo(A)Pyrene	0.973	1.112		-14.3	35.0
Perylene	1.275	1.082		15.1	35.0
Indeno(1,2,3-CD)Pyrene	1.529	1.364		10.8	35.0
Dibenz(A,H)Anthracene	1.323	1.142		13.7	35.0
Benzo(G,H,I)Perylene	1.324	1.269		4.2	35.0
Naphthalene-d8	2.058	1.809		12.1	35.0
Fluorene-d10	1.270	1.150		9.4	35.0
Chrysene-d12	1.212	1.165		3.9	35.0

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Lab File ID (Standard): C7500 Date Analyzed: 04/15/93

Instrument ID: 4500-C Time Analyzed: 1051

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	346624		14.82		624205		18.60		380316		28.49	
	UPPER LIMIT	693248		15.32		1248410		19.10		760632		28.99	
	LOWER LIMIT	173312		14.32		312102		18.10		190158		27.99	
	EPA SAMPLE NO.												
01	28257-01FB	435987		15.02		857908		18.80			*	0.00	*

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Lab File ID (Standard): C7516 Date Analyzed: 04/16/93

Instrument ID: 4500-C Time Analyzed: 0910

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	263650		14.82		446887		18.62		275305		28.67	
	UPPER LIMIT	527300		15.32		893774		19.12		550610		29.17	
	LOWER LIMIT	131825		14.32		223444		18.12		137652		28.17	
	EPA SAMPLE NO.												
01	28257-01	466132		14.84		639317		18.62		316516		28.72	
02	28257-01DU	385209		14.82		508088		18.62		229412		28.72	
03	BLK02	467960		14.82		599857		18.62			*	0.00	*
04	BLK01	515022		14.82		613930		18.62		312583		28.59	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28257 SAS No.: SDG No.:

Lab File ID (Standard): C7533 Date Analyzed: 04/17/93

Instrument ID: 4500-C Time Analyzed: 1104

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	292247		14.82		489265		18.62		284530		28.71	
	UPPER LIMIT	584494		15.32		978530		19.12		569060		29.21	
	LOWER LIMIT	146124		14.32		244632		18.12		142265		28.21	
	EPA SAMPLE NO.												
01	28257-02	239536		14.80		341347		18.67		191022		28.77	
02	28257-01MS	311205		14.82		446073		18.69		177368		28.79	
03	28257-01MSD	409474		14.85		584173		18.70		223740		28.79	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Enseco
A Corning Company

CASE NARRATIVE

FOR

City of St. Louis Park

May 13, 1993

Enseco - RMAL Project Number 028981

Introduction

Seven aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on April 28, 1993. The samples were logged in under RMAL project number 028257. Sample GAC-SLP15TFBD-042793 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

28981-0002MS/SD matrix spike percent recovery for fluorene was reported outside of QC limits due to an interference present in the sample. Quantitation was checked and no further action was taken.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

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303/421-6611 Fax: 303/431-7171

All samples associated with project 028981 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** May 17, 1993
Julieann L. Kramer
Program Manager

Approved by: _____ **Date:** 5-18-93
Randy Greaves
Program Manager

Enseco
A Corning Company

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
028981-0001-SA	GAC-SLP4T-042793	AQUEOUS	27 APR 93		28 APR 93
028981-0002-SA	GAC-SLP15T-042793	AQUEOUS	27 APR 93		28 APR 93
028981-0002-DU	GAC-SLP15TD-042793	AQUEOUS	27 APR 93		28 APR 93
028981-0002-MS	GAC-SLP15TMS-042793	AQUEOUS	27 APR 93		28 APR 93
028981-0002-SD	GAC-SLP15TMSD-042793	AQUEOUS	27 APR 93		28 APR 93
028981-0002-FB	GAC-SLP15TFB-042793	AQUEOUS	27 APR 93		28 APR 93
028981-0002-FD	GAC-SLP15TFBD-042793	AQUEOUS	27 APR 93		28 APR 93

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

RMAL PROJECT# 028981

PPT-PAH

Rocky Mountain
Analytical Laboratory

Enseco
A Corning Company

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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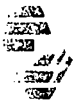

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

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CHAIN OF CUSTODY

SAMPLE SAFE™ CONDITIONS

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)	PACKED BY: MZB	SEAL NUMBER:
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZB	INITIAL CONTENTS TEMP. °C
SAMPLING SITE: SAME	SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MZB	SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB. °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
4-27-93		EAC-SLP4T-042793 01	1XL AMBER	6	PPL PAH	PPL 5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZB

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 210342066 4

RECEIVED FOR LAB: ENSECO-RMAL

SIGNED: Alexandra E. Hall

DATE/TIME: 0645 28APR93

ENSECO PROJECT NUMBER: 28981

ENS–4011

White – CLIENT Pink – LAB

Enseco
A Corning Company

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CHAIN OF CUSTODY

SAMPLE SAFE™ CONDITIONS

ENSECO CLIENT: City of St Louis Park (Water Dept)	PACKED BY: JJB
PROJECT	SEAL NUMBER
SAMPLING COMPANY: SAIC	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY
SAMPLING SITE: SAIC	CONDITION OF CONTENTS
TEAM LEADER: JJB	SEALED FOR SHIPPING BY: JJB
	INITIAL CONTENTS TEMP. °C
	SEAL NUMBER
	SAMPLING STATUS ☐ Done ☐ Continuing Until
	SEAL INTACT UPON RECEIPT BY LAB. ☐ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
4-22-93		EAC-SLPIST-042293 OZ	IXL AMBER	6	PPL PAH	PPL 5
4-22-93		EAC-SLPISTD-042293 OZDU	IXL AMBER	6	PPL PAH	PPL 5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: JJB

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420664

RECEIVED FOR LAB: Enseco-RMAL

SIGNED: Alexandre C. Hall

DATE/TIME: 28 APR 93 0845

ENSECO PROJECT NUMBER: 28981

ENS-4011

White - CLIENT Pink - LAB

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CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park (WATER DEPT)
PROJECT:
SAMPLING COMPANY: SAME
SAMPLING SITE: SAME
TEAM LEADER: MJN

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJN
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MJN
INITIAL CONTENTS TEMP. °C
SEAL NUMBER:
SAMPLING STATUS ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB. ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB. °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
4-27-93		GAC-SLPISTMS-042793 0ZMS	1XL AMBER	6	PPL PAH	PPL S
4-27-93		GAC-SLPISTMSD-042793 0ZSD	1XL AMBER	6	PPL PAH	PPL S

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJN
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER:
RECEIVED FOR LAB: Enseco-RMAL
SIGNED: Alexandra C. Hall
DATE/TIME: 28 APR 93 0845
ENSECO PROJECT NUMBER: 78981

ENS—4011

White – CLIENT Pink – LAB

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CHAIN OF CUSTODY

ENSECO CLIENT: City of ST LOUIS PARK (WATER Dept)	SAMPLE SAFE™ CONDITIONS PACKED BY: MZR	SEAL NUMBER:
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZR	INITIAL CONTENTS TEMP. °C
SAMPLING SITE: SAME	SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MZR	SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB. °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
4-27-93		GAC-SLPISTFB-042793 0ZFB	IXL AMBER	6	PPL PAH	PPL 5
4-27-93		GAC-SLPISTFBD-042793 0ZFD	IXL AMBER	6	PPL PAH	PPL 5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZR

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER:

RECEIVED FOR LAB: ENSECO-RMAL

SIGNED: Alexandra E. Hall

DATE/TIME: 0845 28APR93

ENSECO PROJECT NUMBER: 78981

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 028981	Group Code	Analysis Description	Custom Test?
0001 - 0002, 0002	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N

SUMMARY

DATA

PACKAGE

FOR

CITY OF SAINT LOUIS PARK

RMAL No: 28981

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
28981-01

) Name: ENSECO Contract: GAC-SLP4T-042793

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28981-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7625

Level: (low/med) LOW Date Received: 04/27/93

% Moisture: decanted: (Y/N) N Date Extracted: 04/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/04/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	4	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28981-02

GAC-SLP15T-042793

› Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28981-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7626

Level: (low/med) LOW Date Received: 04/27/93

% Moisture: decanted: (Y/N) N Date Extracted: 04/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/04/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	19	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	5	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	R
92-52-4	Biphenyl	12	
208-96-8	Acenaphthylene	7	R
83-32-9	Acenaphthene	45	
132-64-9	Dibenzofuran	10	
86-73-7	Fluorene	40	
132-65-0	Dibenzothiophene	6	
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	1	JR
86-74-8	Carbazole	2	
206-44-0	Fluoranthene	12	B
129-00-0	Pyrene	10	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
28981-02DU
GAC-SLP15TD-042793

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28981-02DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7627

Level: (low/med) LOW Date Received: 04/27/93

% Moisture: decanted: (Y/N) N Date Extracted: 04/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/04/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	24	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	6	R
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	
92-52-4	Biphenyl	14	
208-96-8	Acenaphthylene	9	
83-32-9	Acenaphthene	53	
132-64-9	Dibenzofuran	11	
86-73-7	Fluorene	48	
132-65-0	Dibenzothiophene	8	
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	3	U
86-74-8	Carbazole	3	
206-44-0	Fluoranthene	13	B
129-00-0	Pyrene	12	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28981-02FB

GAC-SLP15TFB-042793

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28981-02FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7636

Level: (low/med) LOW Date Received: 04/27/93

% Moisture: decanted: (Y/N) N Date Extracted: 04/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/05/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	1	BJ
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28981-02MS

GAC-SLP15TMS-042793

) Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28981-02MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7628

Level: (low/med) LOW Date Received: 04/27/93

% Moisture: decanted: (Y/N) N Date Extracted: 04/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/04/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	15	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiophene	4	R
91-22-5	Quinoline	8	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	8	
208-96-8	Acenaphthylene	5	
83-32-9	Acenaphthene	30	
132-64-9	Dibenzofuran	6	
86-73-7	Fluorene	36	
132-65-0	Dibenzothiophene	5	
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	
206-44-0	Fluoranthene	9	B
129-00-0	Pyrene	9	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	4	
205-99-2	Benzo(B)Fluoranthene	1	J
207-08-9	Benzo(K)Fluoranthene	1	JR
192-97-2	Benzo(E)Pyrene	2	
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

28981-02MSD

GAC-SLP15TMSD-042793

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 28981-02MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7629

Level: (low/med) LOW Date Received: 04/27/93

% Moisture: decanted: (Y/N) N Date Extracted: 04/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/04/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	17	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	8	B
4565-32-6	Benzo(B)Thiophene	4	R
91-22-5	Quinoline	7	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	8	
208-96-8	Acenaphthylene	6	
83-32-9	Acenaphthene	34	
132-64-9	Dibenzofuran	7	R
86-73-7	Fluorene	40	
132-65-0	Dibenzothiophene	6	
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	
206-44-0	Fluoranthene	10	B
129-00-0	Pyrene	9	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	4	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP) #	S2 (FLU) #	S3 (CHR) #	TOT OUT
01	28981-01	84	87	102	0
02	28981-02	76	74	37	0
03	28981-02DU	74	75	31	0
04	28981-02FB	85	76	80	0
05	28981-02MS	72	72	83	0
06	28981-02MSD	71	76	38	0
07	BLK01	78	72	71	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 28981-02

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	0	8.925	94	20-150
Naphthalene	9.520	2.749	8.913	65	20-150
Quinoline	9.520	0	7.676	81	20-150
2-Methylnaphthalene	9.520	1.606	8.485	72	20-150
Fluorene	9.520	40.34	35.58	-50 *	20-150
Chrysene	9.520	0	4.082	43	20-150
Benzo(E)Pyrene	9.520	0	2.178	23	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	8.818	93	1	28	20-150
Naphthalene	9.520	8.401	59	10	28	20-150
Quinoline	9.520	7.414	78	4	28	20-150
2-Methylnaphthalene	9.520	8.044	68	6	28	20-150
Fluorene	9.520	40.22	-1 *	192 *	28	20-150
Chrysene	9.520	3.844	40	7	28	20-150
Benzo(E)Pyrene	9.520	1.928	20	14	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Lab File ID: C7630 Lab Sample ID: BL042993

Instrument ID: 4500-C Date Extracted: 04/29/93

Matrix: (soil/water) WATER Date Analyzed: 05/04/93

Level:(low/med) LOW Time Analyzed: 2133

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	28981-01	28981-01	C7625	05/04/93
02	28981-02	28981-02	C7626	05/04/93
03	28981-02DU	28981-02DU	C7627	05/04/93
04	28981-02FB	28981-02FB	C7636	05/05/93
05	28981-02MS	28981-02MS	C7628	05/04/93
06	28981-02MSD	28981-02MSD	C7629	05/04/93

COMMENTS:

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

) Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL042993

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C7630

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 04/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/04/93

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	0.9	U
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	R
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Lab File ID (Standard): C7616 Date Analyzed: 05/04/93

Instrument ID: 4500-C Time Analyzed: 0958

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	223456		14.67		393131		18.47		460381		28.42	
	UPPER LIMIT	446912		15.17		786262		18.97		920762		28.92	
	LOWER LIMIT	111728		14.17		196566		17.97		230190		27.92	
	EPA SAMPLE NO.												
01	28981-01	207888		14.67		377532		18.52		270973		28.57	
02	28981-02	225166		14.67		391469		18.54		328190		28.57	
03	28981-02DU	197949		14.67		348480		18.54		338940		28.57	
04	28981-02MS	187728		14.67		338017		18.54		364982		28.57	
05	28981-02MSD	148393		14.65		286040		18.52		284219		28.57	
06	BLK01	134256		14.67		245022		18.54		269204		28.57	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 28981 SAS No.: SDG No.:

Lab File ID (Standard): C7635 Date Analyzed: 05/05/93

Instrument ID: 4500-C Time Analyzed: 1541

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	277257		14.65		536630		18.42		254035		28.49	
	UPPER LIMIT	554514		15.15		1073260		18.92		508070		28.99	
	LOWER LIMIT	138628		14.15		268315		17.92		127018		27.99	
	EPA SAMPLE NO.												
01	28981-02FB	277354		14.75		578318		18.52		232478		28.57	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Enseco
A Corning Company

CASE NARRATIVE

FOR

City of St. Louis Park

August 15, 1993

Enseco - RMAL Project Number 030347

Introduction

Seven aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on July 28, 1993. The samples were logged in under RMAL project number 030347. Sample GAC-SLP4TFBD-072793 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The percent recovery for Benzo(E)Pyrene was less than 10% in samples 030347-0001MS/SD. Contractually, it is allowed to have one percent recovery below the minimum QC limit. Since acceptable recovery was achieved for all other spike components (between the range of 24-111%), quantitation was checked and no further action was taken.

Enseco Incorporated
4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 030347 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP. In many instances, R values are related to internal standards or surrogates, and are not reflected on the data sheets.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** 8/15/93
Karen F. Germann
Program Administrator

Approved by: Randy Greaves **Date:** 8/15/93
Randy Greaves
Program Manager

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A Corning Company

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
030347-0001-SA	GAC-SLP4T-072793	AQUEOUS	27 JUL 93		28 JUL 93
030347-0001-DU	GAC-SLP4TD-072793	AQUEOUS	27 JUL 93		28 JUL 93
030347-0001-MS	GAC-SLP4TMS-072793	AQUEOUS	27 JUL 93		28 JUL 93
030347-0001-SD	GAC-SLP4TMSD-072793	AQUEOUS	27 JUL 93		28 JUL 93
030347-0001-FB	GAC-SLP4TFB-072793	AQUEOUS	27 JUL 93		28 JUL 93
030347-0001-FD	GAC-SLP4TFBD-072793	AQUEOUS	27 JUL 93		28 JUL 93
030347-0002-SA	GAC-SLP15T-072793	AQUEOUS	27 JUL 93		28 JUL 93

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ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 030347	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

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Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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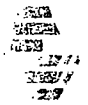

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

Enseco
A Corning Company

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Houston, TX 77032
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CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)
PROJECT:
SAMPLING COMPANY: SAME
SAMPLING SITE: SAME
TEAM LEADER: MJH

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJH
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MJH
INITIAL CONTENTS TEMP: °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
7-27-93		ETF-ACFE-072793	1XLAMBER	2	PPB PAH	-01 (30351)
7-27-93		SAC-SLP15T-072793	1XLAMBER	6	PPT PAH 5	-02 (30397)

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 21[illegible]
RECEIVED FOR LAB:
SIGNED:
DATE/TIME:
ENSECO PROJECT NUMBER: 30347 / 30351

RECEIVED JUL 28 1993 WITH THE CUSTODY OF ENSECO-RMAL Inc.

ENS—4011 White - C' Pink - LAB

Enseco
A Corning Company

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303/421-6611 FAX: 303/431-7171

☐ Enseco Houston
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Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park (Water Dept)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

SEALED FOR SHIPPING BY: MZ

SEAL NUMBER:

SEAL NUMBER:

CONDITION OF CONTENTS:

INITIAL CONTENTS TEMP. °C

SAMPLING STATUS ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB. ☐ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB. °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
7-27-93		EAC-SLP4T-072793	1XL AMBER	6	PPL PAH 5	-01
7-27-93		EAC-SLP4TD-072793	1XL AMBER		PPL PAH 5	-01 DU

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2[illegible]34[illegible]

RECEIVED FOR LAB

SIGNED

DATE/TIME

ENSECO PROJECT NUMBER: 30347

RECEIVED JUL 28 1993

ENS—4011 White – C Pink – LAB

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MJH

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJH

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MJH

INITIAL CONTENTS TEMP. °C

SEAL NUMBER:

SAMPLING STATUS ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB. ☐ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
7-27-93		EAC-SLP 4045-072793	1XL AMBER	6	PPL PAH 5	01-MS
7-27-93		EAC-SLP 4045D-072793	1XL AMBER	6	PPL PAH 5	01-SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER:

RECEIVED FOR LAB: SIGNED:

DATE:

ENSECO PROJECT NUMBER: 30347

RECEIVED JUL 28 1993 ENSECO RMAL CUSTODY

ENS-4011

White - C' Pink - LAB

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
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☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT	SAMPLE SAFE™ CONDITIONS PACKED BY	SEAL NUMBER
PROJECT	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	CONDITION OF CONTENTS
SAMPLING COMPANY	SEALED FOR SHIPPING BY	INITIAL CONTENTS TEMP. °C
SAMPLING SITE	SEAL NUMBER	SAMPLING STATUS ☐ Done ☐ Continuing Until
TEAM LEADER	SEAL INTACT UPON RECEIPT BY LAB. ☐ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB. °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
7-27-93		EAC-SLP 4TFB-072793	1XL AMBER	6	PPL PAH 5	-01-FB
7-27-93		EAC-SLP 4TFBD-072793	1XL AMBER	6	PPL PAH 5	-01-FD
7-27-93		EAC-SLP 1ST-072793	1XL AMBER	6	PPL PAH	

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: 2 2 X

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2 2 3 4

RECEIVED FOR LAB

SIGNED

ENSECO PROJECT NUMBER: 30347

RECEIVED JUL 28 1993

ENS—4011

White - C Pink - LAB

SUMMARY

DATA

PACKAGE

FOR

CITY OF SAINT LOUIS PARK

RMAL No: 30347

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30347-01

GAC-SLP4T-072793

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30347-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7930

Level: (low/med) LOW Date Received: 07/28/93

% Moisture: decanted: (Y/N) N Date Extracted: 07/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	3	B
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

IX

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30347-01DU

GAC-SLP4TD-072793

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30347-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7931

Level: (low/med) LOW Date Received: 07/28/93

% Moisture: decanted: (Y/N) N Date Extracted: 07/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	3	B
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30347-02

GAC-SLPI5T-072793

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30347-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7936

Level: (low/med) LOW Date Received: 07/28/93

% Moisture: decanted: (Y/N) N Date Extracted: 07/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	44	B
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	3	R
83-32-9	Acenaphthene	11	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	3	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30347-01FB

GAC-SLP4TFB-072793

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30347-01FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7932

Level: (low/med) LOW Date Received: 07/28/93

% Moisture: decanted: (Y/N) N Date Extracted: 07/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	B
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30347-01FBD

GAC-SLP4TFBD-072793

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30347-01FBD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7933

Level: (low/med) LOW Date Received: 07/28/93

% Moisture: decanted: (Y/N) N Date Extracted: 07/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	B
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	1	JR

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30347-01MS

GAC-SLP4TMS-072793

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30347-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7934

Level: (low/med) LOW Date Received: 07/28/93

% Moisture: decanted: (Y/N) N Date Extracted: 07/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	3	B
95-13-6	1H-Indene	11	
91-20-3	Naphthalene	10	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	6	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	8	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30347-01MSD

GAC-SLP41MSD-072793

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30347-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7935

Level: (low/med) LOW Date Received: 07/28/93

% Moisture: decanted: (Y/N) N Date Extracted: 07/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	3	B
95-13-6	1H-Indene	10	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	6	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	8	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	2	J
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	30347-01	77	75	33	0
02	30347-01DU	83	76	38	0
03	30347-01FB	78	72	69	0
04	30347-01FBD	73	66	64	0
05	30347-02	76	72	34	0
06	30347-01MS	76	71	35	0
07	30347-01MSD	76	69	24	0
08	BLK01	77	73	65	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 30347-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	ND	10.54	111	20-150
Naphthalene	9.520	2.904	9.639	71	20-150
Quinoline	9.520	ND	6.283	66	20-150
2-Methylnaphthalene	9.520	1.440	8.794	77	20-150
Fluorene	9.520	ND	8.306	87	20-150
Chrysene	9.520	ND	3.344	35	20-150
Benzo(E)Pyrene	9.520	ND	ND	NC	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	10.31	108	3	28	20-150
Naphthalene	9.520	9.353	68	4	28	20-150
Quinoline	9.520	5.974	63	5	28	20-150
2-Methylnaphthalene	9.520	8.437	74	4	28	20-150
Fluorene	9.520	7.902	83	5	28	20-150
Chrysene	9.520	2.297	24	37 *	28	20-150
Benzo(E)Pyrene	9.520	ND	NC	NC	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Lab File ID: C7937 Lab Sample ID: BL072993

Instrument ID: 4500-C Date Extracted: 07/29/93

Matrix: (soil/water) WATER Date Analyzed: 08/03/93

Level:(low/med) LOW Time Analyzed: 2245

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	30347-01	30347-01	C7930	08/03/93
02	30347-01DU	30347-01DU	C7931	08/03/93
03	30347-01FB	30347-01FB	C7932	08/03/93
04	30347-01FBD	30347-01FBD	C7933	08/03/93
05	30347-02	30347-02	C7936	08/03/93
06	30347-01MS	30347-01MS	C7934	08/03/93
07	30347-01MSD	30347-01MSD	C7935	08/03/93

COMMENTS:

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL072993

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C7937

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 07/29/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/03/93

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	1	J
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30347 SAS No.: SDG No.:

Lab File ID (Standard): C7924 Date Analyzed: 08/03/93

Instrument ID: 4500-C Time Analyzed: 1226

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	739231		14.67		1410480		18.45		526262		28.34	
	UPPER LIMIT	1478462		15.17		2820960		18.95		1052524		28.84	
	LOWER LIMIT	369616		14.17		705240		17.95		263131		27.84	
	EPA SAMPLE NO.												
01	30347-01	822681		14.67		1576710		18.45		695053		28.47	
02	30347-01DU	1041630		14.67		1850750		18.45		855462		28.47	
03	30347-01FB	1119640		14.67		1897570		18.47		917094		28.47	
04	30347-01FBD	1126400		14.67		1939990		18.45		966891		28.47	
05	30347-02	981049		14.67		1747570		18.45		846683		28.47	
06	30347-01MS	982847		14.65		1797290		18.42		840157		28.46	
07	30347-01MSD	932660		14.67		1653880		18.45		780662		28.47	
08	BLK01	1059350		14.67		1803540		18.47		872177		28.47	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

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CASE NARRATIVE

FOR

City of St. Louis Park

September 08, 1993

Enseco - RMAL Project Number 030567

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on August 10, 1993. The samples were logged in under RMAL project number 030567. Sample PCJ-SLP15FBD-080993 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

Samples 030567-0002, -0002DL, -0002RR, and -0004MS showed internal standard(s) which were outside control limits. All instrument calibration, internal standard concentration, etc. were checked and found to be in control. Both samples 0002 and 0004 have components above linear range which necessitated a diluted analyses. It has been concluded that an interference specific to the internal standard(s) is present which resulted in areas outside of control limits. This interference does affect the quantitation of target components. Results may be baised low.

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030567-0004MS/SD percent recovery for Fluorene was reported as NC and outside of QC limits, due to the concentration of this component in the initial sample. 030567-0004MS/SD matrix spike duplicate percent recovery for 1H-Indene was reported outside of QC limits, possibly due to the concentration of this component in the initial sample. 030567-0004MS/SD matrix spike percent recovery for Quinoline was reported above QC limits. 030567-0004MS/SD percent recovery for Benzo(E)Pyrene was just below the QC recovery limits at 9% and 8% respectively. This sample set (030567-0004MSDL/SDDL) was analyzed at a dilution, and the Benzo(E)Pyrene results were unrecoverable due to the dilution. 030567-0004MSDL/SDDL percent recovery for Fluorene was reported as NC and outside of QC limits, due to the concentration of this component in the initial sample. 030567-0004MSDL/SDDL matrix spike duplicate percent recovery for 1H-Indene was reported outside of QC limits, possibly due to the concentration of this component in the initial sample. 030567-0004MSDL/SDDL matrix spike percent recovery for Quinoline was reported above QC limits. 030567-0004MSDL/SDDL percent RPD was just above QC limits for 2-Methylnaphthalene. Since sample 030567-0004 had significant concentrations of target compounds including some of the same compounds which are used in the matrix spike mix, quantitation was checked and no further action was taken.

Samples 030567-0001, -0002, -0004, -0005, -0004DU, -0004MS, and -0004SD, show target compounds above the upper calibration range. The samples were reanalyzed at a dilution. Both the original and reanalysis data are reported for each sample. Surrogate recovery was outside of QC limits for samples 030567-0002 and -0002DL. This sample was reanalyzed and confirmed matrix effect.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 030567 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
030567-0001-SA	PCJ-W40-080993	AQUEOUS	09 AUG 93	08:55	10 AUG 93
030567-0002-SA	PCJ-W403-080993	AQUEOUS	09 AUG 93	11:40	10 AUG 93
030567-0003-SA	PCJ-W402-080993	AQUEOUS	09 AUG 93	13:40	10 AUG 93
030567-0004-SA	PCJ-SLP15-080993	AQUEOUS	09 AUG 93		10 AUG 93
030567-0004-DU	PCJ-SLP15D-080993	AQUEOUS	09 AUG 93		10 AUG 93
030567-0004-MS	PCJ-SLP15MS-080993	AQUEOUS	09 AUG 93		10 AUG 93
030567-0004-SD	PCJ-SLP15MSD-080993	AQUEOUS	09 AUG 93		10 AUG 93
030567-0004-FB	PCJ-SLP15FB-080993	AQUEOUS	09 AUG 93		10 AUG 93
030567-0004-FD	PCJ-SLP15FBD-080993	AQUEOUS	09 AUG 93		10 AUG 93
030567-0005-SA	PCJ-W48-080993	AQUEOUS	09 AUG 93	07:20	10 AUG 93

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** 9/10/93
Karen F. Germann
Project Administrator

Approved by: Julieann L. Kramer **Date:** 9/10/93
Julieann L. Kramer
Program Manager

Enseco
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Suite 120
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713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park, MN	PROJECT: SLP
SAMPLING COMPANY: ENSR Consulting & Engineering	SAMPLING SITE: SLP
TEAM LEADER: Peter Moore	

SAMPLE SAFE™ CONDITIONS

PACKED BY: P. Le Moore	SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore	INITIAL CONTENTS TEMP. °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 10.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
8/9/93	8:55	PCJ-W40-080993	H_2O	6	PPT-PAH	PPT-5 -015A
8/9/93	11:40	PCJ-W403-080993	H_2O	6	PPT-PAH	PPT-5 -025A
8/9/93	13:40	PCJ-W402-080993	H_2O	6	PPT-PAH	PPT-5 -035

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
P. Le Moore		8/9/93	

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: P. Le Moore

METHOD OF SHIPMENT: FEDEX

AIRBILL NUMBER:

RECEIVED FOR LAB: RMAL

SIGNED: K. Heumann

DATE/TIME: 8/10/93 0900

ENSECO PROJECT NUMBER: 30567

ENS-4011

White - CLIENT Pink - LAB

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A Corning Company

Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park Water Dept	SAMPLE SAFE™ CONDITIONS		
PROJECT	PACKED BY: N/A	SEAL NUMBER	
SAMPLING COMPANY: SAME	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	CONDITION OF CONTENTS	
SAMPLING SITE: SAME	SEALED FOR SHIPPING BY: N/A	INITIAL CONTENTS TEMP. °C	
TEAM LEADER: N/A	SEAL NUMBER	SAMPLING STATUS: ☐ Done ☐ Continuing Until	
	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.7 °C	

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
8-9-93		PCJ-SLP15-080993	IXL AMBER	6	PPL PAH	PPL 5 -04 SA
8-9-93		PCJ-SLP15D-080993	IXL AMBER	6	PPL PAH	PPL 5 -04 DU

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: N/A

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 210342079 3

RECEIVED FOR LAB: RMAL

SIGNED: K. Hermann

DATE/TIME: 8/10/93 0900

ENSECO PROJECT NUMBER: 30567

ENS-1133

White - CLIENT Pink - LAB

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Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT
PROJECT:
SAMPLING COMPANY: SAME
SAMPLING SITE: SAME
TEAM LEADER: MJR

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJR
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MJR
INITIAL CONTENTS TEMP.: °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 9.3 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
8-9-93		PCU-SLP15MS-080993	IXL AMBER	6	PPL + PAH	PPL 5 -04 MS
8-9-93		PCU-SLP15MSD-080993	IXL AMBER	6	PPL + PAH	PPL 5 -04 SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJR
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103420793
RECEIVED FOR LAB: RMAL
SIGNED: K. Hermann
DATE/TIME: 8/10/93 0900
ENSECO PROJECT NUMBER: 30567

ENS-4011

White - CLIENT Pink - LAB

☐ Rocky Mountain Analytical Laboratory
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CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis PARK WATER DEPT
PROJECT:
SAMPLING COMPANY: SAME
SAMPLING SITE: SAME
TEAM LEADER: MZK

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZK
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SEALED FOR SHIPPING BY: MZK
SEAL NUMBER:
SEAL NUMBER:
CONDITION OF CONTENTS:
INITIAL CONTENTS TEMP.: °C
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB.: 7.6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
8-9-93		PCJ-SLP 15 FB -080993	IXL AMBER	6	PPL + PAH	PPL 5 -04FB
8-9-93		PCJ-SLP 15 EBD-080993	IXL AMBER	6	PPL + PAH	PPL 5 -04FI

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZK
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103420793
RECEIVED FOR LAB: RMAL
SIGNED: K. Humann
DATE/TIME: 8/10/93 0900
ENSECO PROJECT NUMBER: 30567

ENS—4011

White - CLIENT Pink - LAB

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Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: St Louis Park, MN	PROJECT: SLP
SAMPLING COMPANY: ENSR Consulting and Engineering	SAMPLING SITE: SLP
TEAM LEADER: Peter Moore	

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore	SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore	INITIAL CONTENTS TEMP. °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 9.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
8/14	2:20	PLJ-W48-080993	H2O	6	PPT-PAH	PPT-5 -05
						TCL Ref Sampling

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		14:30	

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore		
METHOD OF SHIPMENT: FEDEX	AIRBILL NUMBER:	
RECEIVED FOR LAB:	SIGNED:	DATE/TIME:
ENSECO PROJECT NUMBER:		

ENS-4011

White - CLIENT Pink - LAB

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 030567	Group Code	Analysis Description	Custom Test?
0001 - 0004, 0004 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0004	B	Prep - PAH/SIM by GC/MS Low Level	N

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Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

SUMMARY

DATA

PACKAGE

FOR

CITY OF SAINT LOUIS PARK

RMAL No: 30567

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30567-04

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.: PCJ-SLP15-080993

Matrix: (soil/water) WATER Lab Sample ID: 30567-04

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7982

Level: (low/med) LOW Date Received: 08/10/93

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/13/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	280	ERT
95-13-6	1H-Indene	19	
91-20-3	Naphthalene	5	BJ
4565-32-6	Benzo(B)Thiophene	77	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	11	R
92-52-4	Biphenyl	59	
208-96-8	Acenaphthylene	100	RT
83-32-9	Acenaphthene	180	ET
132-64-9	Dibenzofuran	48	
86-73-7	Fluorene	160	ET
132-65-0	Dibenzothiophene	36	
85-01-8	Phenanthrene	7	B
120-12-7	Anthracene	9	
260-94-6	Acridine	4	R
86-74-8	Carbazole	11	
206-44-0	Fluoranthene	65	
129-00-0	Pyrene	78	B
56-55-3	Benzo(A)Anthracene	4	
218-01-9	Chrysene	3	J
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

IX

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30567-04DL

PCJ-SLPI5-080993

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30567-04DL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8018

Level: (low/med) LOW Date Received: 08/10/93

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/17/93

Injection Volume: 2.0(uL) Dilution Factor: 0.595

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	24	U
496-11-7	2,3-Dihydroindene	560	D
95-13-6	1H-Indene	20	D
91-20-3	Naphthalene	5	BDJ
4565-32-6	Benzo(B)Thiophene	87	D
91-22-5	Quinoline	7	U
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	4	U
90-12-0	1-Methylnaphthalene	11	DR
92-52-4	Biphenyl	62	D
208-96-8	Acenaphthylene	200	D
83-32-9	Acenaphthene	550	D
132-64-9	Dibenzofuran	46	D
86-73-7	Fluorene	310	D
132-65-0	Dibenzothiophene	33	D
85-01-8	Phenanthrene	7	BD
120-12-7	Anthracene	8	DR
260-94-6	Acridine	5	DJR
86-74-8	Carbazole	12	D
206-44-0	Fluoranthene	76	D
129-00-0	Pyrene	99	BD
56-55-3	Benzo(A)Anthracene	12	U
218-01-9	Chrysene	13	U
205-99-2	Benzo(B)Fluoranthene	12	U
207-08-9	Benzo(K)Fluoranthene	11	U
192-97-2	Benzo(E)Pyrene	9	U
50-32-8	Benzo(A)Pyrene	11	U
198-55-0	Perylene	12	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	8	U
191-24-2	Benzo(G,H,I)Perylene	13	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30567-04DU

PCJ-SLPI5D-080993

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30567-04DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7996

Level: (low/med) LOW Date Received: 08/10/93

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/16/93

Injection Volume: 2.0(uL) Dilution Factor: 0.595

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	24	U
496-11-7	2,3-Dihydroindene	560	
95-13-6	1H-Indene	20	
91-20-3	Naphthalene	5	BJ
4565-32-6	Benzo(B)Thiophene	88	
91-22-5	Quinoline	7	U
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	4	U
90-12-0	1-Methylnaphthalene	12	R
92-52-4	Biphenyl	67	
208-96-8	Acenaphthylene	220	
83-32-9	Acenaphthene	600	
132-64-9	Dibenzofuran	49	
86-73-7	Fluorene	350	
132-65-0	Dibenzothiophene	37	
85-01-8	Phenanthrene	8	B
120-12-7	Anthracene	9	
260-94-6	Acridine	14	U
86-74-8	Carbazole	14	
206-44-0	Fluoranthene	77	
129-00-0	Pyrene	95	B
56-55-3	Benzo(A)Anthracene	12	U
218-01-9	Chrysene	13	U
205-99-2	Benzo(B)Fluoranthene	12	U
207-08-9	Benzo(K)Fluoranthene	11	U
192-97-2	Benzo(E)Pyrene	9	U
50-32-8	Benzo(A)Pyrene	11	U
198-55-0	Perylene	12	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	8	U
191-24-2	Benzo(G,H,I)Perylene	13	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30567-04FB

PCJ-SLPI5FB-080993

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30567-04FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7992

Level: (low/med) LOW Date Received: 08/10/93

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/16/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30567-04FBD

PCJ-SLPI5FBD-080993

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30567-04FBD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7980

Level: (low/med) LOW Date Received: 08/10/93

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/13/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30567-04MS

PCJ-SLPI5MS-080993

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30567-04MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7984

Level: (low/med) LOW Date Received: 08/10/93

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/13/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	260	ET
95-13-6	1H-Indene	27	
91-20-3	Naphthalene	11	B
4565-32-6	Benzo(B)Thiophene	74	R
91-22-5	Quinoline	16	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	B
90-12-0	1-Methylnaphthalene	11	R
92-52-4	Biphenyl	58	
208-96-8	Acenaphthylene	91	R
83-32-9	Acenaphthene	150	ET
132-64-9	Dibenzofuran	47	
86-73-7	Fluorene	150	ERT
132-65-0	Dibenzothiophene	36	
85-01-8	Phenanthrene	7	B
120-12-7	Anthracene	8	
260-94-6	Acridine	4	R
86-74-8	Carbazole	11	
206-44-0	Fluoranthene	63	
129-00-0	Pyrene	74	B
56-55-3	Benzo(A)Anthracene	4	R
218-01-9	Chrysene	7	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30567-04MSDL

PCJ-SLP15MS-080993

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30567-04MSDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7997

Level: (low/med) LOW Date Received: 08/10/93

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/16/93

Injection Volume: 2.0(uL) Dilution Factor: 0.595

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	24	U
496-11-7	2,3-Dihydroindene	570	D
95-13-6	1H-Indene	28	D
91-20-3	Naphthalene	11	BDJ
4565-32-6	Benzo(B)Thiophene	88	D
91-22-5	Quinoline	16	DR
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	8	BD
90-12-0	1-Methylnaphthalene	12	DR
92-52-4	Biphenyl	65	D
208-96-8	Acenaphthylene	220	D
83-32-9	Acenaphthene	600	D
132-64-9	Dibenzofuran	50	D
86-73-7	Fluorene	350	D
132-65-0	Dibenzothiophene	35	D
85-01-8	Phenanthrene	8	BD
120-12-7	Anthracene	8	D
260-94-6	Acridine	14	U
86-74-8	Carbazole	13	D
206-44-0	Fluoranthene	74	D
129-00-0	Pyrene	90	BD
56-55-3	Benzo(A)Anthracene	12	U
218-01-9	Chrysene	6	DJ
205-99-2	Benzo(B)Fluoranthene	12	U
207-08-9	Benzo(K)Fluoranthene	11	U
192-97-2	Benzo(E)Pyrene	9	U
50-32-8	Benzo(A)Pyrene	11	U
198-55-0	Perylene	12	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	8	U
191-24-2	Benzo(G,H,I)Perylene	13	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30567-04MSD

Lab Name: ENSECO Contract: PCJ-SLPI5MSD-080993

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30567-04MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7985

Level: (low/med) LOW Date Received: 08/10/93

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/13/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	260	ERT
95-13-6	1H-Indene	21	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiophene	67	
91-22-5	Quinoline	13	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	7	B
90-12-0	1-Methylnaphthalene	9	R
92-52-4	Biphenyl	52	
208-96-8	Acenaphthylene	92	RT
83-32-9	Acenaphthene	170	T
132-64-9	Dibenzofuran	41	
86-73-7	Fluorene	160	T
132-65-0	Dibenzothiophene	32	
85-01-8	Phenanthrene	7	B
120-12-7	Anthracene	8	
260-94-6	Acridine	4	R
86-74-8	Carbazole	11	
206-44-0	Fluoranthene	60	
129-00-0	Pyrene	73	B
56-55-3	Benzo(A)Anthracene	4	
218-01-9	Chrysene	6	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

30567-04MSDDL

PCJ-SLP15MSD-080993

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 30567-04MSDDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C7998

Level: (low/med) LOW Date Received: 08/10/93

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/16/93

Injection Volume: 2.0(uL) Dilution Factor: 0.595

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	24	U
496-11-7	2,3-Dihydroindene	430	D
95-13-6	1H-Indene	21	D
91-20-3	Naphthalene	9	BDJ
4565-32-6	Benzo(B)Thiophene	68	D
91-22-5	Quinoline	12	DR
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	6	BD
90-12-0	1-Methylnaphthalene	9	DR
92-52-4	Biphenyl	53	D
208-96-8	Acenaphthylene	180	D
83-32-9	Acenaphthene	490	D
132-64-9	Dibenzofuran	40	D
86-73-7	Fluorene	300	D
132-65-0	Dibenzothiophene	31	D
85-01-8	Phenanthrene	7	BD
120-12-7	Anthracene	7	D
260-94-6	Acridine	14	U
86-74-8	Carbazole	11	D
206-44-0	Fluoranthene	66	D
129-00-0	Pyrene	82	BD
56-55-3	Benzo(A)Anthracene	12	U
218-01-9	Chrysene	6	DJ
205-99-2	Benzo(B)Fluoranthene	12	U
207-08-9	Benzo(K)Fluoranthene	11	U
192-97-2	Benzo(E)Pyrene	9	U
50-32-8	Benzo(A)Pyrene	11	U
198-55-0	Perylene	12	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	8	U
191-24-2	Benzo(G,H,I)Perylene	13	U

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	30567-01	63	74	44	0
02	30567-02	0 *	57	0 *	2
03	30567-02DL	0 *	51	555 *	2
04	30567-03	46	42	56	0
05	30567-04	65	70	44	0
06	30567-04DL	81	64	65	0
07	30567-04DU	66	68	85	0
08	30567-04FB	66	61	108	0
09	30567-04FBD	66	64	64	0
10	30567-05	60	76	61	0
11	30567-04MS	65	70	41	0
12	30567-04MSD	50	60	39	0
13	30567-04MSDDL	62	53	68	0
14	30567-04MSDL	72	64	67	0
15	BLK01	78	72	78	0

		QC LIMITS
S1 (NAP)	= Naphthalene-d8	(14-108)
S2 (FLU)	= Fluorene-d10	(41-162)
S3 (CHR)	= Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 30567-04

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	19.40	27.25	82	20-150
Naphthalene	9.520	5.367	11.46	64	20-150
Quinoline	9.520	ND	16.06	168 *	20-150
2-Methylnaphthalene	9.520	1.856	8.473	70	20-150
Fluorene	9.520	159.5	153.5	NC *	20-150
Chrysene	9.520	2.713	6.569	40	20-150
Benzo(E)Pyrene	9.520	ND	0.843	9 *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	20.82	15 *	27	28	20-150
Naphthalene	9.520	8.901	37	25	28	20-150
Quinoline	9.520	13.09	138	20	28	20-150
2-Methylnaphthalene	9.520	6.521	49	20	28	20-150
Fluorene	9.520	157.1	NC *	NC *	28	20-150
Chrysene	9.520	6.355	38	3	28	20-150
Benzo(E)Pyrene	9.520	0.749	8 *	12	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 30567-04DL

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	19.81	28.02	86	20-150
Naphthalene	9.520	5.296	11.25	63	20-150
Quinoline	9.520	ND	15.53	163 *	20-150
2-Methylnaphthalene	9.520	ND	8.449	89	20-150
Fluorene	9.520	310.0	354.0	462 *	20-150
Chrysene	9.520	ND	6.426	68	20-150
Benzo(E)Pyrene	9.520	ND	ND	NC *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	21.06	13 *	28	28	20-150
Naphthalene	9.520	8.568	34	27	28	20-150
Quinoline	9.520	12.38	130	23	28	20-150
2-Methylnaphthalene	9.520	6.128	64	32 *	28	20-150
Fluorene	9.520	296.3	NC *	18	28	20-150
Chrysene	9.520	6.010	63	7	28	20-150
Benzo(E)Pyrene	9.520	ND	NC *	NC *	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Lab File ID: C7981 Lab Sample ID: BL081093

Instrument ID: 4500-C Date Extracted: 08/10/93

Matrix: (soil/water) WATER Date Analyzed: 08/13/93

Level:(low/med) LOW Time Analyzed: 1609

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	30567-01	30567-01	C7999	08/16/93
02	30567-02	30567-02	C8019	08/17/93
03	30567-02DL	30567-02DL	C7994	08/16/93
04	30567-03	30567-03	C7995	08/16/93
05	30567-04	30567-04	C7982	08/13/93
06	30567-04DL	30567-04DL	C8018	08/17/93
07	30567-04DU	30567-04DU	C7996	08/16/93
08	30567-04FB	30567-04FB	C7992	08/16/93
09	30567-04FBD	30567-04FBD	C7980	08/13/93
10	30567-05	30567-05	C8000	08/16/93
11	30567-04MS	30567-04MS	C7984	08/13/93
12	30567-04MSD	30567-04MSD	C7985	08/13/93
13	30567-04MSDDL	30567-04MSDDL	C7998	08/16/93
14	30567-04MSDL	30567-04MSDL	C7997	08/16/93

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL081093

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C7981

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 08/10/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/13/93

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Lab File ID (Standard): C7974 Date Analyzed: 08/13/93

Instrument ID: 4500-C Time Analyzed: 1043

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	296370		15.62		442517		19.52		281826		30.17	
	UPPER LIMIT	592740		16.12		885034		20.02		563652		30.67	
	LOWER LIMIT	148185		15.12		221258		19.02		140913		29.67	
	EPA SAMPLE NO.												
01	30567-04	546112		15.60		845840		19.50		364649		30.17	
02	30567-04FBD	363040		15.57		565550		19.42		333300		30.07	
03	30567-04MS	605242	*	15.59		918962	*	19.49		388297		30.16	
04	30567-04MSD	534984		15.59		849268		19.49		374678		30.17	
05	BLK01	466956		15.60		639690		19.50		292446		30.17	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Lab File ID (Standard): C7991 Date Analyzed: 08/16/93

Instrument ID: 4500-C Time Analyzed: 1118

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	279333		15.69		407484		19.52		219698		30.01	
	UPPER LIMIT	558666		16.19		814968		20.02		439396		30.51	
	LOWER LIMIT	139666		15.19		203742		19.02		109849		29.51	
	EPA SAMPLE NO.												
01	30567-01	354674		15.82		614428		19.65		215172		30.29	
02	30567-02DL	804019	*	15.82		806128		19.64		182984		30.19	
03	30567-03	520752		15.80		542806		19.62		186806		30.26	
04	30567-04DU	326677		15.72		545711		19.55		246820		30.17	
05	30567-04FB	292941		15.77		453935		19.57		207518		30.21	
06	30567-05	413796		15.82		718539		19.64		222757		30.22	
07	30567-04MSDDL	310913		15.80		505312		19.62		214906		30.27	
08	30567-04MSDL	334241		15.82		548788		19.65		239512		30.29	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 30567 SAS No.: SDG No.:

Lab File ID (Standard): C8009 Date Analyzed: 08/17/93

Instrument ID: 4500-C Time Analyzed: 1249

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	353057		15.67		515175		19.54		285425		30.02	
	UPPER LIMIT	706114		16.17		1030350		20.04		570850		30.52	
	LOWER LIMIT	176528		15.17		257588		19.04		142712		29.52	
	EPA SAMPLE NO.												
01	30567-02	1179190	*	15.79		862248		19.70		225111		30.17	
02	30567-04DL	400016		15.80		630705		19.70		323060		30.17	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

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CASE NARRATIVE

FOR

City of St. Louis Park

October 28, 1993

Enseco - RMAL Project Number 031555

Introduction

Seven aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on October 05, 1993. The samples were logged in under RMAL project number 031555. Sample GAC-SLP4FBD-100493 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The percent recovery for Benzo(E)Pyrene was below QC limits in samples 031555-0001MS/SD. Contractually, it is allowed to have one percent recovery below the minimum QC limit. Since acceptably recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

Surrogate recovery for chrysene-d12 was outside of QC limits high for sample 031555-0001FB, but all surrogate recoveries were within QC limits for sample 031555-0001FBD. Surrogate recovery for fluorene-d10 was outside of QC limits low for sample 031555-0002. This sample was reanalyzed and confirmed matrix effect.

Phenanthrene was found in BLK01 at 7ng/L. This sample was reanalyzed and phenanthrene's presence was confirmed. All samples associated to the blank contained less than 7 ng/L of phenanthrene with the exception of sample 031555-0002 which reported phenanthrene at 8 ng/L.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 031555 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** Oct. 28, 1993
Karen F. Germann
Program Administrator

Approved by: _____ **Date:** _____
Julieann L. Kramer
Program Manager

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
031555-0001-SA	GAC-SLP4T-100493	AQUEOUS	04 OCT 93		05 OCT 93
031555-0001-DU	GAC-SLP4TD-100493	AQUEOUS	04 OCT 93		05 OCT 93
031555-0001-MS	GAC-SLP4TMS-100493	AQUEOUS	04 OCT 93		05 OCT 93
031555-0001-SD	GAC-SLP4TMSD-100493	AQUEOUS	04 OCT 93		05 OCT 93
031555-0001-FB	GAC-SLP4TFB-100493	AQUEOUS	04 OCT 93		05 OCT 93
031555-0001-FD	GAC-SLP4TFBD-100493	AQUEOUS	04 OCT 93		05 OCT 93
031555-0002-SA	GAC-SLP10T-100493	AQUEOUS	04 OCT 93		05 OCT 93

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ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 031555	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

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Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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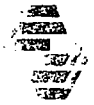

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

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A Corning Company

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☐ Enseco Houston
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Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park Water Dept	SAMPLE SAFE™ CONDITIONS
PROJECT:	PACKED BY: MJR — SEAL NUMBER:
SAMPLING COMPANY: SAME	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: — CONDITION OF CONTENTS:
SAMPLING SITE: SAME	SEALED FOR SHIPPING BY: MJR — INITIAL CONTENTS TEMP. °C
TEAM LEADER: MJR	SEAL NUMBER: — SAMPLING STATUS: ☐ Done ☐ Continuing Until
	SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No — CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 2.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-4-93		GAC-SLP4FB-100493	1XL AMBER	6	PPL PAH	PPL 5 -1 FB
10-4-93		GAC-SLP4FBD-100493	1XL AMBER	6	PPL PAH	PPL 5 -1 FD
10-4-93		GAC-SLP10T-100493	1XL AMBER	6	PPL PAH	PPL 5 -2

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJR

METHOD OF SHIPMENT: FED EX — AIRBILL NUMBER: 210342084l

RECEIVED FOR LAB: RMH — SIGNED: JDeCo — DATE/TIME: 10-5-93 830

ENSECO PROJECT NUMBER: 31555

ENS—4011

White – CLIENT Pink – LAB

Enseco
A Corning Company

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☐ Enseco Houste
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Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis PARK WATER DEPT
PROJECT:
SAMPLING COMPANY: SAME
SAMPLING SITE: SAME
TEAM LEADER: MJH

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJH
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MJH
INITIAL CONTENTS TEMP. °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB. 3-5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-4-93		GAC-SLP4T-100493	IX LAMBER	6	PPL PAH	PPL 5 1 ~~2~~ KG
10-4-93		GAC-SLP4TD-100493	IX LAMBER	6	PPL PAH	PPL 5 1 DUP ~~2~~ KG

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 210 342 0841
RECEIVED FOR LAB: RMAL
SIGNED: JDeCus
DATE/TIME: 10-5-93 830
ENSECO PROJECT NUMBER: 31555

ENS—4011

White – CLIENT Pink – LAB

Enseco
A Corning Company

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CHAIN OF CUSTODY

SAMPLE SAFE™ CONDITIONS

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT	PACKED BY: MJR	SEAL NUMBER:
PROJECT /	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MJR	INITIAL CONTENTS TEMP. °C
SAMPLING SITE: SAME	SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MJR	SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-4-93		EAC-SLP4MS-100493	IXL AMBER	6	PPL PAH	PPL 5 -1MS
10-4-93		EAE-SLP-4MSD-100493	IXL AMBER	6	PPL PAH	PPL 5 -1SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJR

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420841

RECEIVED FOR LAB: RMR

SIGNED: J Reckow

DATE/TIME: 10-5-93 830

ENSECO PROJECT NUMBER: 31555

ENS-4011

White - CLIENT Pink - LAB

SUMMARY

DATA

PACKAGE

FOR

CITY OF SAINT LOUIS PARK

RMAL NO: 31555

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31555-01

GAC-SLP4T-100493

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31555-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8194

Level: (low/med) LOW Date Received: 10/05/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/07/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/15/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	4	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	BJ
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	B
90-12-0	1-Methylnaphthalene	1	J
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	2	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	11	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	4	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31555-01DU

GAC-SLP4TD-100493

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31555-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8195

Level: (low/med) LOW Date Received: 10/05/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/07/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/15/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	1	J
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	2	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	8	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	3	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31555-01FB

GAC-SLP4TFB-100493

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31555-01FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8193

Level: (low/med) LOW Date Received: 10/05/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/07/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/15/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31555-01FBD

Lab Name: ENSECO Contract:

GAC-SLP4TFBD-100493

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31555-01FBD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8164

Level: (low/med) LOW Date Received: 10/05/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/07/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/11/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31555-02

GAC-SLPIOT-100493

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31555-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8196

Level: (low/med) LOW Date Received: 10/05/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/07/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/15/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	40	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	2	
83-32-9	Acenaphthene	10	
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	4	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	8	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	3	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31555-01MS

GAC-SLP4TMS-100493

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31555-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8167

Level: (low/med) LOW Date Received: 10/05/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/07/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/11/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	5	
91-20-3	Naphthalene	8	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	6	B
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	7	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	6	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	6	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	2	J
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31555-01MSD

Lab Name: ENSECO Contract: GAC-SLP4TMSD-100493

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31555-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8168

Level: (low/med) LOW Date Received: 10/05/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/07/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/11/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	JR
95-13-6	1H-Indene	5	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	7	B
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	B
90-12-0	1-Methylnaphthalene	1	J
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	7	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	31555-01	90	64	54	0
02	31555-01DU	68	50	56	0
03	31555-01FB	72	54	190 *	1
04	31555-01FBD	83	61	79	0
05	31555-02	54	38 *	47	1
06	31555-01MS	72	54	34	0
07	31555-01MSD	95	65	36	0
08	BLK01	68	62	88	0

		QC LIMITS
S1 (NAP)	= Naphthalene-d8	(14-108)
S2 (FLU)	= Fluorene-d10	(41-162)
S3 (CHR)	= Chrysene-d12	(10-118)

\# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 31555-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	ND	5.046	53	20-150
Naphthalene	9.520	3.796	7.818	42	20-150
Quinoline	9.520	0.9639	5.807	51	20-150
2-Methylnaphthalene	9.520	2.642	6.807	44	20-150
Fluorene	9.520	2.320	6.497	44	20-150
Chrysene	9.520	ND	2.428	26	20-150
Benzo(E)Pyrene	9.520	ND	ND	NC	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	5.498	58	9	28	20-150
Naphthalene	9.520	9.472	60	19	28	20-150
Quinoline	9.520	6.831	62	16	28	20-150
2-Methylnaphthalene	9.520	7.949	56	15	28	20-150
Fluorene	9.520	7.223	52	11	28	20-150
Chrysene	9.520	2.666	28	9	28	20-150
Benzo(E)Pyrene	9.520	ND	NC	NC	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Lab File ID: C8162 Lab Sample ID: BL100793

Instrument ID: 4500-C Date Extracted: 10/07/93

Matrix: (soil/water) WATER Date Analyzed: 10/11/93

Level:(low/med) LOW Time Analyzed: 1713

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	31555-01	31555-01	C8194	10/15/93
02	31555-01DU	31555-01DU	C8195	10/15/93
03	31555-01FB	31555-01FB	C8193	10/15/93
04	31555-01FBD	31555-01FBD	C8164	10/11/93
05	31555-02	31555-02	C8196	10/15/93
06	31555-01MS	31555-01MS	C8167	10/11/93
07	31555-01MSD	31555-01MSD	C8168	10/11/93

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL100793

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C8162

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 10/07/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/11/93

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	J
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	7	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Lab File ID (Standard): C8161 Date Analyzed: 10/11/93

Instrument ID: 4500-C Time Analyzed: 1627

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	380579		15.87		628678		19.72		691538		30.32	
	UPPER LIMIT	761158		16.37		1257356		20.22		1383076		30.82	
	LOWER LIMIT	190290		15.37		314339		19.22		345769		29.82	
	EPA SAMPLE NO.												
01	31555-01FBD	563032		15.85		902164		19.72		869110		30.24	
02	31555-01MS	715176		15.84		1186210		19.70		1237090		30.31	
03	31555-01MSD	650107		15.85		1056860		19.72		1067930		30.32	
04	BLK01	570666		15.85		989680		19.70		733570		30.32	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31555 SAS No.: SDG No.:

Lab File ID (Standard): C8192 Date Analyzed: 10/15/93

Instrument ID: 4500-C Time Analyzed: 1120

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	459063		15.47		871252		19.27		631704		29.67	
	UPPER LIMIT	918126		15.97		1742504		19.77		1263408		30.17	
	LOWER LIMIT	229532		14.97		435626		18.77		315852		29.17	
	EPA SAMPLE NO.												
01	31555-01	916298		15.45		1553430		19.25		815251		29.66	
02	31555-01DU	816588		15.45		1218440		19.25		611501		29.66	
03	31555-01FB	693024		15.45		1327470		19.27		591744		29.66	
04	31555-02	915552		15.44		1171700		19.25		618379		29.64	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Enseco
A Corning Company

CASE NARRATIVE

FOR

City of St. Louis Park

October 25, 1993

Enseco - RMAL Project Number 031568

Introduction

Nine aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on October 06, 1993. The samples were logged in under RMAL project number 031568. Sample GAC-SLP10FBDEX-100593 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH) plus extended list.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

031568-0001MS/SD matrix spike percent recovery for Benzo(E)Pyrene was reported outside of QC limits low. Quantitation was checked and no further action was taken. Fluorene was reported outside of QC limits low for 031568-0001MSD. Quantitation was checked and no further action was taken.

Enseco Incorporated
4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

Sample 031568-0002 showed target compounds above the upper calibration range. The sample was reanalyzed at a dilution. Both the original and reanalysis data are reported for this sample.

The analysis of sample 031568-BL101193 showed surrogate recovery of Chrysene-d12 outside QC limits high. This blank was associated only to sample 031569-0001MSD, which exhibited acceptable surrogate recovery. Quantitation was checked, and no further analytical action was taken.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 031568 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** Oct 28, 1993
Karen F. Germann
Project Administrator

Approved by: Julieann L. Kramer **Date:** Oct 28, 1993
Julieann L. Kramer
Program Manager

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
031568-0001-SA	GAC-SLP10TEX-100593	AQUEOUS	05 OCT 93		06 OCT 93
031568-0001-DU	GAC-SLP10TDEX-100593	AQUEOUS	05 OCT 93		06 OCT 93
031568-0001-MS	GAC-SLP10TMSEX-100593	AQUEOUS	05 OCT 93		06 OCT 93
031568-0001-SD	GAC-SLP10TMSDEX-100593	AQUEOUS	05 OCT 93		06 OCT 93
031568-0001-FB	GAC-SLP10TFBEX-100593	AQUEOUS	05 OCT 93		06 OCT 93
031568-0001-FD	GAC-SLP10TFBDEX-100593	AQUEOUS	05 OCT 93		06 OCT 93
031568-0002-SA	GAC-SLP10FEX-100593	AQUEOUS	05 OCT 93		06 OCT 93
031568-0003-SA	GAC-SLP4FEX-100593	AQUEOUS	05 OCT 93		06 OCT 93
031568-0004-SA	GAC-SLP4TEX-100593	AQUEOUS	05 OCT 93		06 OCT 93

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ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 031568	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0004	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	Y
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

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A Corning Company

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

Enseco Incorporated
4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

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A Corning Company

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Arvada, CO 80002
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☐ Enseco Houston
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Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT	SAMPLE SAFE™ CONDITIONS
PROJECT	PACKED BY: MJH
SAMPLING COMPANY: SAME	SEAL NUMBER
SAMPLING SITE: SAME	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY
TEAM LEADER: MJH	CONDITION OF CONTENTS
	SEALED FOR SHIPPING BY: MJH
	INITIAL CONTENTS TEMP. °C
	SEAL NUMBER
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
	SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-5-93		GAC-SLP10TMSEX-100593-01MS	IXL AMBER	6	PPL PAH	EXTENDED PAH
10-5-93		GAC-SLP10TMSDEX-100593-01SD	IXL AMBER	6	PPL PAH	EXTENDED PAH

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420852

RECEIVED FOR LAB: [illegible] SIGNED: [illegible] DATE/TIME: 10/6/93 830

ENSECO PROJECT NUMBER: ~~31555~~ 31568

ENS—4011

White - CLIENT Pink - LAB

ENSECO
A Corning Company

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4955 Yarrow Street
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☐ Enseco Houston
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Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT	SAMPLE SAFE™ CONDITIONS — PACKED BY: MJB; SEAL NUMBER:
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: ; CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MJB; INITIAL CONTENTS TEMP.: °C
SAMPLING SITE: SAME	SEAL NUMBER: ; SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MJB	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No; CONTENTS TEMPERATURE UPON RECEIPT BY LAB.: 2.4 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-5-93		GAC-SLP4FEX-100593-03	IXL AMBER	6	PPL PAH	EXTENDED PAH
10-5-93		GAC-SLP4TEX-100593-04	IXL AMBER	6	PPL PAH	EXTENDED PAH

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJB

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420852

RECEIVED FOR LAB: RMAL

SIGNED: JDeCus

DATE/TIME: 10/6/93

ENSECO PROJECT NUMBER: ~~31555~~ 31568

ENS—4011

White - CLIENT Pink - LAB

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713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis PARK (WATER DEPT)	PROJECT:	SAMPLE SAFE™ CONDITIONS	
		PACKED BY: MJH	SEAL NUMBER:
		SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME		SEALED FOR SHIPPING BY: MJH	INITIAL CONTENTS TEMP.: °C
SAMPLING SITE: SAME		SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MJH		SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.0°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-5-93		GAC-SLP10FEX-100593-02	1XL AMBER	6	PPL PAH	EXTENDED PAH
10-5-93		GAC-SLP10TFBEX-100593-01FB	1XL AMBER	6	PPL PAH	EXTENDED PAH
10-5-93		GAC-SLP10TFBDEX-100593-01FBDU	1XL AMBER	6	PPL PAH	EXTENDED PAH

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420552

RECEIVED FOR LAB: RMPL

SIGNED: JDeCo

DATE/TIME: 10/6/93 830

ENSECO PROJECT NUMBER: 31555 31568

ENS—4011

White – CLIENT Pink – LAB

☐ Rocky Mountain Analytical Laboratory
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Enseco
A Corning Company

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park Water Dept
PROJECT:
SAMPLING COMPANY: SAME
SAMPLING SITE: SAME
TEAM LEADER: MZA

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZA
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MZA
INITIAL CONTENTS TEMP. °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB. ☑ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB. 3.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-5-93		GAC-SLP10TEX -100593 -01	1XL AMBER	6	PPT PAH	EXTENDED PAH
10-5-93		GAC-SLP10TDEX-100593 -01DU	1XL AMBER	6	PPT PAH	EXTENDED PAH

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZA
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103420552
RECEIVED FOR LAB: [signature]
SIGNED: [signature]
DATE/TIME: 10/6/93 835
ENSECO PROJECT NUMBER: ~~31555~~ 31568

ENS—4011

White - CLIENT Pink - LAB

SUMMARY

DATA

PACKAGE

FOR

CITY OF SAINT LOUIS PARK

RMAL No: 31568

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31568-01

GAC-SLPIOTEX-I00593

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8171

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/12/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	53	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	4	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	2	J
208-96-8	Acenaphthylene	4	R
83-32-9	Acenaphthene	17	
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	7	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	5	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-40-5	3-Methylcholanthrene	4	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31568-01DU

Lab Name: ENSECO Contract: GAC-CLPIOTDEX-I00593

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8197

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/15/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	72	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	3	J
4565-32-6	Benzo(B)Thiophene	4	R
91-22-5	Quinoline	1	JR
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	R
92-52-4	Biphenyl	2	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	19	
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	8	
132-65-0	Dibenzothiophene	1	J
85-01-8	Phenanthrene	9	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	4	
129-00-0	Pyrene	3	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	1	J
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-49-5	3-Methylcholanthrene	4	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31568-01FB

Lab Name: ENSECO Contract: GAC-SLPIOTFBEX-100593

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-01FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8178

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/12/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	1	J
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	5	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-49-5	3-Methylcholanthrene	4	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31568-01FBD

Lab Name: ENSECO Contract: GAC-SLPIOTFBDEX-100593

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-01FBD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8179

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/12/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-49-5	3-Methylcholanthrene	4	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31568-02

Lab Name: ENSECO Contract: GAC-SLPIOFEX-I00593

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8198

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/15/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	120	RT
95-13-6	1H-Indene	11	
91-20-3	Naphthalene	4	J
4565-32-6	Benzo(B)Thiophene	45	RT
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	R
90-12-0	1-Methylnaphthalene	13	R
92-52-4	Biphenyl	39	RT
208-96-8	Acenaphthylene	49	RT
83-32-9	Acenaphthene	87	T
132-64-9	Dibenzofuran	39	RT
86-73-7	Fluorene	79	T
132-65-0	Dibenzothiophene	33	
85-01-8	Phenanthrene	23	
120-12-7	Anthracene	5	
260-94-6	Acridine	4	
86-74-8	Carbazole	6	
206-44-0	Fluoranthene	65	RT
129-00-0	Pyrene	60	R
56-55-3	Benzo(A)Anthracene	2	JR
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-49-5	3-Methylcholanthrene	4	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31568-02DL

Lab Name: ENSECO Contract: GAC-SLP10FEX-100593

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-02DL

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C8188

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/12/93

Injection Volume: 2.0(uL) Dilution Factor: 0.595

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	26	U
496-11-7	2,3-Dihydroindene	540	D
95-13-6	1H-Indene	15	D
91-20-3	Naphthalene	5	DJ
4565-32-6	Benzo(B)Thiophene	110	D
91-22-5	Quinoline	6	DJR
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	4	U
90-12-0	1-Methylnaphthalene	18	DR
92-52-4	Biphenyl	71	D
208-96-8	Acenaphthylene	130	D
83-32-9	Acenaphthene	370	D
132-64-9	Dibenzofuran	78	D
86-73-7	Fluorene	290	D
132-65-0	Dibenzothiophene	29	D
85-01-8	Phenanthrene	20	D
120-12-7	Anthracene	6	U
260-94-6	Acridine	14	U
86-74-8	Carbazole	5	DJ
206-44-0	Fluoranthene	78	D
129-00-0	Pyrene	65	D
56-55-3	Benzo(A)Anthracene	12	U
218-01-9	Chrysene	14	U
205-99-2	Benzo(B)Fluoranthene	14	U
207-08-9	Benzo(K)Fluoranthene	12	U
192-97-2	Benzo(E)Pyrene	10	U
50-32-8	Benzo(A)Pyrene	12	U
198-55-0	Perylene	14	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	8	U
191-24-2	Benzo(G,H,I)Perylene	14	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	14	U
56-49-5	3-Methylcholanthrene	18	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31568-03

GAC-SLP4FEX-100593

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-03

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8199

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/15/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	72	
95-13-6	1H-Indene	4	
91-20-3	Naphthalene	3	JR
4565-32-6	Benzo(B)Thiophene	16	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	48	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	7	
120-12-7	Anthracene	1	U
260-94-6	Acridine	1	J
86-74-8	Carbazole	8	
206-44-0	Fluoranthene	3	
129-00-0	Pyrene	3	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-49-5	3-Methylcholanthrene	4	U

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31568-04

GAC-SLP4TEX-100593

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-04

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8174

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/12/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-49-6	3-Methylcholanthrene	4	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

31568-01MS

Lab Name: ENSECO Contract: GAC-SLPIOTMSEX-100593

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8181

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/12/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	64	
95-13-6	1H-Indene	8	
91-20-3	Naphthalene	9	
4565-32-6	Benzo(B)Thiophene	4	R
91-22-5	Quinoline	7	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	2	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	17	
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	15	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	8	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	3	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	4	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-49-5	3-Methylcholanthrene	4	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
31568-01MSD

Lab Name: ENSECO Contract: GAC-SLPIOTMSDEX-100593

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 31568-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8182

Level: (low/med) LOW Date Received: 10/06/93

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/12/93

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	54	
95-13-6	1H-Indene	6	
91-20-3	Naphthalene	8	
4565-32-6	Benzo(B)Thiophene	3	R
91-22-5	Quinoline	6	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	7	
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	2	JR
208-96-8	Acenaphthylene	3	R
83-32-9	Acenaphthene	14	
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	12	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	6	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	1	J
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-49-5	3-Methylcholanthrene	4	U

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	31568-01	74	61	50	0
02	31568-01DU	98	84	93	0
03	31568-01FB	105	75	96	0
04	31568-01FBD	102	73	94	0
05	31568-02	52	43	64	0
06	31568-02DL	84	64	D	0
07	31568-03	53	45	58	0
08	31568-04	62	52	36	0
09	31568-01MS	72	59	70	0
10	31568-01MSD	71	59	47	0
11	BLK01	70	60	94	0
12	BLK02	82	61	148 *	1

		QC LIMITS
S1 (NAP)	= Naphthalene-d8	(14-108)
S2 (FLU)	= Fluorene-d10	(41-162)
S3 (CHR)	= Chrysene-d12	(10-118)

\# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 31568-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	ND	7.568	79	20-150
Naphthalene	9.520	1.761	8.711	73	20-150
Quinoline	9.520	ND	7.390	78	20-150
2-Methylnaphthalene	9.520	1.059	7.806	71	20-150
Fluorene	9.520	6.997	14.52	79	20-150
Chrysene	9.520	ND	3.618	38	20-150
Benzo(E)Pyrene	9.520	ND	1.309	14	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	6.497	68	15	28	20-150
Naphthalene	9.520	8.354	69	4	28	20-150
Quinoline	9.520	6.331	67	15	28	20-150
2-Methylnaphthalene	9.520	7.354	66	6	28	20-150
Fluorene	9.520	11.60	48	22	28	20-150
Chrysene	9.520	2.832	30	24	28	20-150
Benzo(E)Pyrene	9.520	0.639	7 *	69 *	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Lab File ID: C8170 Lab Sample ID: BL100993

Instrument ID: 4500-C Date Extracted: 10/09/93

Matrix: (soil/water) WATER Date Analyzed: 10/11/93

Level:(low/med) LOW Time Analyzed: 2322

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	31568-01	31568-01	C8171	10/12/93
02	31568-01DU	31568-01DU	C8197	10/15/93
03	31568-01FB	31568-01FB	C8178	10/12/93
04	31568-01FBD	31568-01FBD	C8179	10/12/93
05	31568-02	31568-02	C8198	10/15/93
06	31568-02DL	31568-02DL	C8188	10/12/93
07	31568-03	31568-03	C8199	10/15/93
08	31568-04	31568-04	C8174	10/12/93
09	31568-01MS	31568-01MS	C8181	10/12/93

COMMENTS:

1X

ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL100993

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C8170

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/11/93

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L		Q
271-89-6	2,3-Dibenzofuran		5	U
496-11-7	2,3-Dihydroindene		1	U
95-13-6	1H-Indene		0.9	U
91-20-3	Naphthalene		6	U
4565-32-6	Benzo(B)Thiophene		0.9	U
91-22-5	Quinoline		1	U
120-72-9	1H-Indole		2	U
91-57-6	2-Methylnaphthalene		0.9	U
90-12-0	1-Methylnaphthalene		2	U
92-52-4	Biphenyl		4	U
208-96-8	Acenaphthylene		1	U
83-32-9	Acenaphthene		1	U
132-64-9	Dibenzofuran		1	U
86-73-7	Fluorene		1	U
132-65-0	Dibenzothiophene		1	U
85-01-8	Phenanthrene		1	U
120-12-7	Anthracene		1	U
260-94-6	Acridine		3	U
86-74-8	Carbazole		2	U
206-44-0	Fluoranthene		1	U
129-00-0	Pyrene		1	U
56-55-3	Benzo(A)Anthracene		2	U
218-01-9	Chrysene		3	U
205-99-2	Benzo(B)Fluoranthene		2	U
207-08-9	Benzo(K)Fluoranthene		2	U
192-97-2	Benzo(E)Pyrene		2	U
50-32-8	Benzo(A)Pyrene		2	U
198-55-0	Perylene		2	U
193-39-5	Indeno(1,2,3-CD)Pyrene		2	U
53-70-3	Dibenz(A,H)Anthracene		2	U
191-24-2	Benzo(G,H,I)Perylene		3	U
57-97-5	7,12-Dimethylbenz(A)Anthracene		3	U
56-49-5	3-Methylcholanthrene		4	U

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK02

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Lab File ID: C8180 Lab Sample ID: BL101193

Instrument ID: 4500-C Date Extracted: 10/11/93

Matrix: (soil/water) WATER Date Analyzed: 10/12/93

Level:(low/med) LOW Time Analyzed: 1426

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	31568-01MSD	31568-01MSD	C8182	10/12/93

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK02

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL101193

Sample wt/vol: 2000 (g/mL) ML Lab File ID: C8180

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 10/09/93

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/12/93

Injection Volume: 1.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	0.9	U
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U
57-97-6	7,12-Dimethylbenz(A)Anthracene	3	U
56-49-5	3-Methylcholanthrene	4	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Lab File ID (Standard): C8161 Date Analyzed: 10/11/93

Instrument ID: 4500-C Time Analyzed: 1627

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	380579	15.87	628678	19.72	691538	30.32
	UPPER LIMIT	761158	16.37	1257356	20.22	1383076	30.82
	LOWER LIMIT	190290	15.37	314339	19.22	345769	29.82
	EPA SAMPLE NO.						
01	31568-01	650112	15.84	1074280	19.69	902119	30.29
02	31568-04	750276	15.84	1210310	19.69	1320930	30.29
03	BLK01	621052	15.85	1034570	19.70	978552	30.31

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Lab File ID (Standard): C8176 Date Analyzed: 10/12/93

Instrument ID: 4500-C Time Analyzed: 1058

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	408590	15.52	628972	19.34	317435	29.79
	UPPER LIMIT	817180	16.02	1257944	19.84	634870	30.29
	LOWER LIMIT	204295	15.02	314486	18.84	158718	29.29
	EPA SAMPLE NO.						
01	31568-01FB	448562	15.49	634040	19.32	419772	29.77
02	31568-01FBD	416751	15.52	600765	19.34	363964	29.79
03	31568-02DL	569596	15.50	939346	19.32	540114	29.77
04	31568-01MS	546113	15.49	901042	19.32	579200	29.77
05	31568-01MSD	558985	15.52	891368	19.34	552067	29.79
06	BLK02	462840	15.52	750961	19.34	427768	29.81

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 31568 SAS No.: SDG No.:

Lab File ID (Standard): C8192 Date Analyzed: 10/15/93

Instrument ID: 4500-C Time Analyzed: 1120

		IS1(ACN) AREA	#	RT	#	IS2(PHN) AREA	#	RT	#	IS3(BAP) AREA	#	RT	#
	12 HOUR STD	459063		15.47		871252		19.27		631704		29.67	
	UPPER LIMIT	918126		15.97		1742504		19.77		1263408		30.17	
	LOWER LIMIT	229532		14.97		435626		18.77		315852		29.17	
	EPA SAMPLE NO.												
01	31568-01DU	769790		15.47		1173200		19.27		513591		29.66	
02	31568-02	896367		15.47		1146560		19.27		590481		29.66	
03	31568-03	895088		15.45		1321530		19.25		606624		29.66	

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.